THE OIL WEEKLY

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The Oil Man's Calendar

OCT.	
2– 3	West Virginia Oil & Natural Gas Association, Clarksburg.
6– 9	National Safety Congress, Chicago.
9–11	Texas Mid-Continent Oil & Gas Association, Beaumont.
16–17	American Association of Petroleum Geologists, Pacific Section, Los Angeles.
16–18	American Institute of Mining & Metallurgical Engineers, Petroleum Division, Dallas.
20–22	National Stripper Well Association, Tulsa.
20–22	Independent Petroleum Association of America, Tulsa.
29–30	American Institute of Mining & Metallurgical Engineers, Petroleum Division, Los Angeles.
31	California Natural Gasoline Association, Los Angeles.
NOV.	
2– 7	American Petroleum Institute, Annual Meeting, San Francisco.
13–14	American Association of Oil Well Drilling Contractors, Annual Meeting, Dallas, Texas.
DEC.	
3	New Mexico Oil & Gas Association, Artesia.
5	Oklahoma Stripper Well Association, Tulsa.

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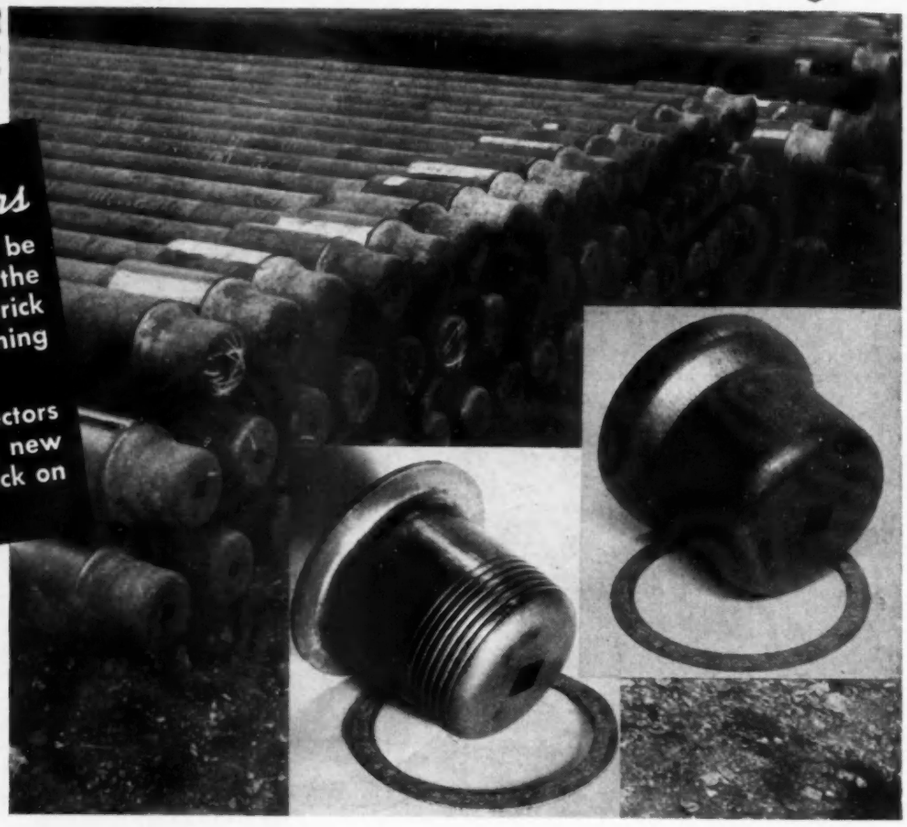

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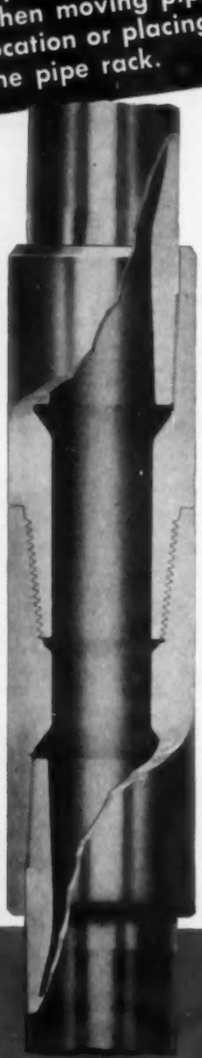

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The Changing Panorama

Higher Prices Are Knocking at Door

Conditions Indicate Fight To Get Government Price Ceilings Increased

The meeting last week of Pennsylvania producers with Leon Henderson and other officials of the OPACS was an extremely important session to the oil industry at large. To a considerable degree the immediate price trend of petroleum and its products in the Mid-Continent, Middle West and Gulf Coast regions, as well as in Pennsylvania, will depend upon the outcome of the controversy that has developed over the recent 23- to 25-cent-per-barrel increase in Pennsylvania crude oil prices that raised them above the "ceiling" decided upon by this government agency.

Everywhere higher prices are literally knocking at the door. The situation is ideal for further increases, with an exceptional heavy consumptive demand causing a scramble for well connections and crude oil, and with producers troubled by enlarged operating costs due to wage and tax increases. It is a sellers market. Even recent lease-lend bids made by Gulf Coast refiners have been above the 6½-cent ceiling established by Henderson for motor fuel. So tight is the supply situation, the government has failed to get bids on some of its requirements.

Should Pennsylvania producers, who went to Washington last week armed with data on increased costs, be successful in getting OPACS to boost the ceiling on Pennsylvania crude from $2.75 to $3.00 per barrel, higher prices elsewhere will no doubt be posted at once. If OPACS decides to stick with its $2.75 ceiling, a heated general fight over prices is likely to result, with other regions assisting Pennsylvania oil men by boosting their price upward despite Washington.

North Texas Complaint . . .

Directors of North Texas Oil & Gas Association have instituted movement for the equalization of North Texas crude prices with the higher postings in force in the East Texas field and Oklahoma. The body also seeks a reduction in pipeline tariffs and removal of freight-rate differentials between North Texas and Group 3 (Oklahoma) on refined products.

The association alleges that North Texas crude of equal quality is selling 7 cents per barrel under East Texas and Oklahoma crudes, although substantial quantities of North Texas oil is piped to northern markets at same trunk line rate as crude produced in Oklahoma.

North Texas pipe-line gathering and trunk line tariffs are held to be both discriminatory and unequal. Gathering charges of carriers that serve independent refineries in the district are said to be a minimum of five cents per barrel above tariffs applying in other Texas areas and the southwest, resulting in unreasonable burden upon producers and local plant owners. Freight rates on refined products are a minimum of 2½ cents per hundredweight higher from North Texas than from points immediately north in Oklahoma, resulting in the curtailment of refinery operations in the vicinity of Wichita Falls.

War's Roundabout Echoes . . .

In addition to its already noted disturbance of the balance in tanker movements, and production of steel desired for well completion and pipe-line laying, there appears another shortage chargeable to war's disruption of shipping—especially through and within the Gulf of Mexico.

Where formerly the Gulf has been literally dotted with ships, with anywhere from one to a dozen vessels visible on the horizon at all times along any of the recognized shipping lanes across that body of water, there now exists such a shortage that the weatherman, dependent for basic data upon reports originating on ships at various points around a storm center, is no longer able to locate definitely nor plot accurately the tropical hurricanes which traverse the Gulf and ultimately reach land to level derricks, float lease tanks, and otherwise upset the ordered routine of coastal oil production.

Oil's Future Rests On Turn of War

Events Could Cause a Big Spurt in British and Soviet Requirements

Already the war has had important influences upon the petroleum industry of the United States, but the end of the road is by no means yet in sight. Significant changes in the current war situation may have equally important influences on the industry's position in the future.

Suppose Russia should lose its oil fields, second richest in the world, and yet continue fighting. Or suppose that the British should lose the Near East oil fields and still maintain an important battle ground somewhere in Asia or Africa. In either or both events the United States would be called upon for incalculable quantities of petroleum, and there would be further substantial diversion of tankers from the already crippled domestic fleet.

Though its crude reserves and daily production are the greatest in the world, the United States oil industry already is commencing to worry about its ability to fulfill consumptive requirements—and it is not taking into consideration the possibility of either Russia or Great Britain needing materially enlarged quantities. Current worry is based upon the sharp upward trend of domestic consumption resulting from the national defense program and its effect on civilian, industrial and military requirements; and prospects that equipment for conducting a normal prospecting and development campaign to replenish depleted supplies may not be available due to steel shortage.

The situation has not reached the "alarm" stage yet, but it has distinct possibilities.

Tank Car Puzzle . . .

The confusion which has arisen over contradictory statements concerning the availability of large numbers of tank cars is intensified by reports circulated in New York oil circles that the number of tank

cars are 1500 below present requirements. It was just three weeks ago that railroad interests testified before a Senate investigating committee that there were 20,000 idle tank cars or the equivalent that could be used to alleviate the East Coast shortage. These figures were refuted by Ralph K. Davies, Deputy Petroleum Coordinator as being computations based on theoretical efficiencies that might be accomplished in the handling of cars currently in use.

The New York report either means that the industry has taken up whatever slack there was or that there never was any large number of idle tank cars to start with. It is estimated that there are 150,000 tank cars with capacities of about 10,000 gallons each, of which 2500 are not suitable for hauling petroleum and another 1000 are owned by the Navy and Army.

Reduced Casing Sizes . . .

Reduction of more than 50 percent in the number of sizes, weights and grades of steel casing used by the petroleum industry, made by the American Petroleum Institute Division of Production's Committee on Standardization of Oil-Country Tubular Goods, is a direct aid to national defense because of the simplified manufacturing procedure that will result.

The number of casing units required by the industry has been reduced to 95 from more than 200. Four grades of steel once generally applicable to all sizes and weights of casing now are limited to specific sizes and weights. For instance, 5-inch and 16-inch casing are to be available only in three grades, and 20-inch casing only in two. All other standard sizes will be available in three to eight weights in four steel grades.

To effect the simplification without loss or hardship, users of pipe should not demand new items until present stocks of equivalent old items are used up, vendors and manufacturers should not replenish stocks with items not on the simplified list, and users should not expect to obtain sizes or grades not on the new list after present stocks are exhausted.

Fuel Short Down South . . .

Hard hit by inability to secure through the usual tanker channels enough petroleum products to meet their needs, Brazil and Uruguay are having to restrict sharply the consumption of these products and adopt substitutes.

An unusual substitute fuel being used in Brazil is cottonseed cake. Central Brazil Railway has contracted for 15,000 tons of cake to replace coal, which is also imported. Industries are using in addition to cottonseed cake such materials as charcoal and wood where fuel oil and coal had previously been burned. Limited gasoline supplies are being adulterated with alcohol. In Rio de Janeiro state wider use of animal transportation in cities is being urged by the state government. The above steps have been taken in an effort to effect a 30 percent reduction in use of petroleum products in Brazil.

The Uruguayan government is likewise trying to reduce oil consumption by 30 percent by restricting sales to all but public utility companies and farmers.

Oil Speeds . . .

Eastern statisticians, deprived of gasoline for their usual week-ending away from the job, are reported to have dug into the merits of pipe line versus tank car transportation of crude oil.

Taking the railroad basis of 100 miles per day for the car, and computing the rate of oil flow through a pipe line at 2¾ miles per hour, there shows an apparent gain in speed in favor of the railroad of 34 miles per day in favor of the rolling carrier.

But, since the tank car must return empty, at the same average rate per day it progressed loaded—plus the usual railroad delay accorded empties—the pipe line barrel capacity moves its lading 12 miles a day further than its corresponding space in the tank car.

It will take considerable speeding of railroad methods to make up the 32 percent discrepancy now existing between the two modes of handling, if the time element is to be considered—and conserved.

SHAKE-OUTS
From The News

Shipments of refined products from East Texas refineries set a 1941 record of 4,400,477 gallons during the week ended September 14, an increase of 808,825 gallons from the previous week. Railroad-tank-car movement led the parade, a total of 184 cars, 54 more than the previous week, moving 1,772,705 gallons of products. For the first time during the year, none of the tank cars were shipments to the Gulf Coast.

⁂

Car-tonks, checking tank cars which had stood for years on sidings in East Texas when the lean years descended upon them after hot oil turned cold, report many unusual finds. One car, adjacent to a shack colony, was found to be two thirds full of tin cans, garbage and trash. Another, not too far from the first, had a pair of insulated wires led in through one of the outlets, at the end of which was an electric light, operating on "borrowed" current, which served to illuminate fairly comfortable sleeping quarters built into the tank of scrap lumber. The prize, however, was discovered in a tank car which had stood for years near the Texas-Louisiana border and which, while being cleaned, was found to have served as liquor cache, yielding several gallon cans of whiskey and a number of cases of wine. Railroad reports fail to show whether or not the car inspectors checking this last car were on the job the following day!

⁂

Pan American Oil Company, through its marketing affiliate, American Oil Company, has commenced the shipment of 60 to 80 tank cars of gasoline daily from its Texas City refinery to cities on the South Atlantic Coast. In addition, 25 tank cars of heavy oil and asphalt products are moving from Texas and Louisiana.

⁂

For the first time in years hundreds of service stations on the Texas Gulf Coast were "out" of gasoline for a few hours last week. Those temporarily out were in the path of the hurricane which blew down power lines in many areas. Most gasoline pumps are electrically operated, but stations with hand pumps did "better than usual" business. Several coastal refineries, both large and small, as well as pump stations, were forced to cease operations for a few hours due to the power failure.

⁂

Intangible tax assessments for Texas pipe lines for 1941 have been released by State Comptroller George H. Sheppard. Valuation of all lines affected totaled $45,107,975, a decrease of $1,931,025 from 1940. The comptroller assessed Humble Pipe Line Company at $8,306,200, an assessment of $181,300 less than the figures for 1940. This was the highest assessment placed on any line. Sinclair Refining Company was second with an assessment of $5,894,200, up $74,200 from 1940. Atlantic Pipe Line Co. was assessed at $4,450,000, which was $494,000 less than the assessment for 1940.

Washington Roundup

Aviation gasoline manufacturing capacity to be trebled by building 50 new plants . . . Stiffer rationing restrictions may hit East Coast, with SPAB assuming enforcement control . . . Pacific Coast supply situation studied

By B. F. LINZ, Washington Correspondent

PROPOSALS for the trebling of the output of 100-octane aviation gasoline, indications of a stiffening of the gasoline-delivery restrictions on the East Coast and possibilities that the SPAB might even issue a priority order to make the rationing program more enforceable were outstanding developments of the week in the National Capitol, which saw Coordinator Ickes also giving considerable attention to the Pacific Coast supply situation.

The current shortage of metals was seen as a factor in the carrying out of a program announced by Coordinator Ickes for the construction of some 50 refineries and a number of by-product plants to boost the production of aviation gasoline by 200 percent or more to meet the deficiency created by the addition of Russia to the countries to which we are supplying fuel and the stepping up of bombing operations by the British RAF, which calls for enlarged supplies.

Aviation Gasoline

A $150,000,000 program designed to more than treble the present refinery capacity for 100-octane gasoline is being mapped out by the coordinator's office, it was disclosed September 25.

This program, under which the daily average output of aviation gasoline will be increased to approximately 120,000 barrels, will involve the construction of 50 new refining plants and an unspecified number of by-product plants in various parts of the country.

Disclosing his plans for bringing about the increase in 100-octane production—an increase far greater than any previously contemplated—Coordinator Ickes said the emergency with respect to aviation fuel has been intensified materially by needs of Russia and Britain. As a result, he said, whereas a few weeks ago he thought aviation gasoline capacity should be doubled, it will now be necessary at least to treble it.

"The situation with respect to aviation gasoline is not cheerful," he admitted. "It is bad, and there is a decided shortage of high octane aviation gas." He disclosed that the Navy went into the market in the past few days for 600,000 barrels of aviation gasoline and failed to get bids. The Navy, however, is understood to have sufficient 100-octane gasoline for its present needs, but is seeking additional stocks.

Ickes explained that he has had conferences with representatives of the oil industry and with Federal Loan Administrator Jesse Jones, and that the latter was willing to make contracts for purchase of the increased output "for a reasonable period" which will encourage private capital to cooperate.

Some of the proposed refineries will be built by private capital, he said, while others will be constructed by the Government with RFC funds and still others will be built by the Government and subsequently leased to private operators.

"In addition to this," Ickes continued, "we are also considering a stock-pile for aviation gas. Demands for aviation gas by both Russia and Great Britain have led to a shortage that is serious."

Ickes warned that the proposed program could not be achieved overnight since the production of high-octane aviation gas is a difficult process necessitating the use of many by-products, among them chlorine, of which there is a deficiency now, and it is probable that part of the $150,000,000 cost will go into the construction of chlorine plants.

Offers of sites for the construction of the new refineries already have been received, he said, and are under consideration by both his office and the RFC.

"We are going to distribute these plants around so as to afford the little independent an opportunity to participate in the program," he said. "It is not our intention to give all the contracts to the big oil companies."

He stated that so far plans for the new program had progressed to the point where contract forms had been drawn up and taken under consideration. He estimated, however, that it would take between eight and nine months to carry out the construction of the refineries.

"Upon completion of this program," he promised, "we shall have trebled the present output of high-octane aviation gasoline, which will be necessary if we are to meet the demands of the Navy and at the same time assist the allies."

Rationing Plans

A new retail sales curtailment formula reportedly is in the making, to be announced before October 1 for application during the coming month.

Designed to overcome the deficiencies of the present scheme of merely requiring suppliers not to deliver more than 90 percent of July takings to their customers, the new program will be in the form of a priorities order from Donald M. Nelson of SPAB so as to permit the proper control of any violators who may be found.

The new order, it was said, will

limit deliveries to 90 percent of the May-June-July average, and definite quotas will be provided for each of the 17 states and District of Columbia which comprise the East Coast "deficiency" area.

To avoid the difficulties which have been encountered during the past six weeks, caused by the fact that in some areas July deliveries were low and in others—summer resorts—very high, deliveries to individual customers under the new system will be predicated upon the proportional share of each in the October, 1940, total demand in each state.

Consideration also is reported being given to the application of the reduction to taxicabs and trucks, which under the present set-up are exempted.

Shortage

Taking steps to deal with conditions on both coasts, the coordinator's office early in the week called on Eastern suppliers to shift surpluses of gasoline from one locality to another in order to assure an even distribution to meet regional demands, and called on committees in District No. 5 to develop plans for preventing an acute shortage along the Pacific seaboard.

It was pointed out that Eastern summer resorts which had an excessively high July demand now are experiencing a relatively low consumption while other areas are reaching peak demands as crops are harvested or as a result of heavy military and defense construction programs.

Orders of the coordinator and the OPM permit suppliers to meet seasonal and unusual conditions by transfers from one locality to another, so long as the over-all reduction of 10 percent is maintained.

Analysis of the communications reaching the coordinator's office indicates that the "overwhelming majority" of Atlantic Coast filling station operators strongly favor night closing—a ratio of eight to one being claimed.

"And a majority of them state that it definitely has resulted in conservation of gasoline," it was added by oil officials.

The views of the station operators were disclosed in answers to a questionnaire sent out by the District No. 1 Marketing Committee. Out of 2500 replies received during the first half of the month, 2230 dealers said they liked night closing and 1373 dealers said the program has reduced the consumption of gasoline.

West Coast Situation

The call on District No. 5 committees was the first step taken by the coordinator to deal with a shortage on the West Coast occasioned by the diversion of tankers to carry aviation gasoline to Russia.

Both the committees and the companies operating in the area were asked to develop plans for more efficient utilization of available tanker tonnage and to "take such other action as may be necessary" to prevent an "acute shortage."

It followed dispatch of a telegram to A. L. Weil, chairman of the general industry committee for the district, urging the industry not only to eliminate cross hauls, multiple port discharges and empty steaming miles for tankers, but to move to press into service pipe lines, motor trucks, tank cars and all other transportation facilities available.

Any action less than this by the companies, it was warned, is bound to lead to delay in meeting the threatened deficiency.

"By moving in on this situation before it reaches the stage of an actual shortage, it is the hope of this office that the Pacific Northwest and other coastal areas dependent on tankers will be assured a continuing supply of products to the extent of at least their minimum necessary requirements," Coordinator Ickes said.

His recommendations to the committees and the industry called for the appointment of a special tanker subcommittee to develop and carry into effect new schedules and cargo loading and dispatching arrangements which will result in the most efficient use of the tankers available. Such a program, he emphasized, should assure all existing producers, refiners and marketers, large and small, the same degree of access to markets and suppliers.

Ickes also suggested that the tanker, pipe-line, transport, barge, terminal and storage facilities of all companies should be operated and used without regard to individual ownership, to cut idle time in port for tankers to a minimum and eliminate as far as possible the splitting of cargoes between two or more ports of discharge.

California Proration

The coordinator recommended, in a letter to E. E. Pyles, chairman of the District 5 production committee, that the Pacific Coast work out a definite plan for oil conservation and submit it to him in time to be made effective October 1. Pursuant to this suggestion, a subcommittee consisting of L. L. Aubert, chairman, W. C. Whaley, E. F. Davis, F. S. Bryant, and E. E. Pyles are trying to develop such a program.

The coordinator's letter was prompted by the District Committee calling to his attention sometime ago that proration of oil in the state was on a voluntary basis, and that the committee was prepared to recommend "such method of voluntary proration be continued if, in the opinion of the coordinator, such procedure will, under the circumstances, best serve national defense and conservation."

In his reply, Ickes stated that he was "not empowered to approve or recommend proration by voluntary agreement as a purely abstract matter," and he thought "your committee should present to this office a concrete and specific program . . . before any such formal recommendation can be properly made." He asked for a detailed program and scheme of organization, and suggested the committee formulate and propose some definite plans for:

"1—Encouraging and fostering the exploration for and discovery of new petroleum and natural gas reserves at a rate not less than that by which known reserves are annually depleted.

"2—The further development of all petroleum and natural gas reserves in such an orderly and efficient manner as to result in the most effective and economical use of raw materials, supplies, and equipment.

"3—The future development and production of the petroleum and natural gas reserves in such a way as to result in the most efficient and effective use of the natural reservoir energy or of the energy which may be artifically restored or augmented.

"4—Obtaining the maximum economic recovery of the limited petroleum and natural gas reserves.

"5—Efficiently supplying reasonable special demands for certain grades or kinds of petroleum at particular places.

"6—Accomplishing the foregoing objectives without impairing or

jeopardizing the present defense requirements or the defense and civilian needs of the future.

"You will appreciate, of course, that the formulation of working policies and plans including the broad topics outlined above will necessarily include such items as the spacing of wells for maximum economic recovery, and to accomplish the most effective use of materials and supplies that will be available under the priority system; the drilling of wells in such fields and at such a rate that the necessary additional reserves may become available as needed and so that the most effective use may be made of the limited supplies of equipment and material. The allocation of deliveries of crude from producing wells in such a way that unnecessary drilling will not be stimulated, the resources of each reservoir reasonably conserved rather than unreasonably spent, the production and gathering of oil and natural gas in such manner and by such means that there may be no inefficient duplication of the equipment and facilities which again will be limited both in amount and availability."

Alcohol Blends

With the two-coast shortage of facilities for transportation centering attention on possibilities of increasing supplies by various expedients, the National Bureau of Standards during the week reported that from a purely engineering standpoint, the blending of alcohol and gasoline is feasible, but refused to hazard a guess as to the economic factor of cost.

The bureau pointed out that such blends are being used in some foreign countries, Japan, particularly, where 20 percent of alcohol is required in motor fuel. However, it commented, the cost of gasoline in the countries adopting blends is far greater than in the United States and in some countries is greater than the cost of alcohol.

Priorities

Robert E. Allen, director of production, Office of Petroleum Coordinator, has notified district offices that geophysical, well logging, gun perforating and sulphur mining companies have been given preference rating A-10 under preference rating order P-22 for emergency repairs and maintenance.

E. O. Buck, assistant director of production for District 3, announced last week the OPC has given the Houston district office authority to render 24-hour service on priority ratings in emergencies where an oil company has a wildcat well that looks like a discovery but has no pipe. Buck urged companies to obviate this necessity, however, by anticipating needs. At the same time, he said offices for the district, Texas, New Mexico, Arkansas, Louisiana, Mississippi and Alabama, will be opened October 1 in the Esperson Building.

Tank Cars

Thorough investigation of the tank car situation by a special subcommittee of the District No. 1 Transportation Committee has revealed only 5192 of the 20,000 surplus cars claimed by the railroads, it was asserted by Coordinator Ickes, September 26.

Making public the reports of the subcommittee, Ickes explained that they had been transmitted to him by W. Alton Jones, president of Cities Service Oil Company, chairman of the transportation committee.

"It had been my intention to submit this report to the special senate committee investigating the petroleum shortage when and if I was called as a witness," he said.

The transportation committee reported that it had surveyed 147,838 cars in the hands of 188 companies, developing the existence of 7744 surplus cars, of which, however, 2552 were held by their owners to be needed for immediate use.

"You will note that there is a wide discrepancy between this factual inventory of cars and statements which have appeared in the press recently, which has left the impression that there are 20,000 idle tank cars now standing ready to be placed in service for the transportation of oil to District 1, which has felt most acutely the effects of the diversion of tanker transportation to the shuttle service," the committee pointed out. "In submitting the subcommittee's report, we wish to call your attention to the fact that the inventory of surplus cars which they have made does not indicate the exact location of the surplus equipment. It is assumed that the surplus cars reported are located in various parts of the United States. The subcommittee has directed further inquiry to tank-car owners in an effort to secure the location of surplus cars in each district, and as soon as this information is available, it will be filed with your office."

Pelly on Tank Cars

Following publication of the report J. J. Pelly, president of the Association of American Railroads, issued the following statement:

"I see no point in a controversy about just how many surplus tank cars are available. The figures I gave the Senate committee were furnished by the people who own the tank cars.

"We are now moving to the Atlantic Seaboard 75,000 barrels of oil per day, although the general rate reductions have been in effect only 10 days. Railroads and oil companies are completing arrangements for a further substantial movement to the Eastern Seaboard. So far as I know, the oil companies who are now moving and propose to move the oil are having no difficulty in getting tank cars."

Committees

Further appointments to the various committees which are acting in an advisory capacity to the coordinator were announced September 25, as follows:

District No. 2 Production Committee: Earl D. Wallace, Petroleum Exploration, Inc., Lexington, Ky.; Alex U. McCandless, president, Mahutska Oil Company, Robinson, Ill.

District No. 2 Refining Committee: W. K. Warren, natural gasoline department, Warren Petroleum Company, Tulsa.

District No. 2 Marketing Committee: P. E. Lakin, Shell Oil Company, Chicago.

District No. 4 Refining Committee: Dr. C. C. Buchler, manager of the Rocky Mountain division, Standard Oil Company of Indiana, Casper, Wyo., succeeding H. E. Cotton, resigned.

District No. 1 Marketing Committee asphalt subcommittee: W. W. McFarland, vice president, Cities Service Oil Company, New York.

Dr. Robert E. Wilson, president of Pan-American Transport &

Petroleum Company and until August 1 petroleum consultant in the Office of Production Management, has been named a member of the industry refining committee for District 1.

Lieutenant Commander W. H. Osgood, on "loan" from the Navy, has been named director of production for District 5, in charge of the district headquarters at Los Angeles when they are opened.

Other members of the Los Angeles staff so far appointed include William F. Huff, formerly with the Petroleum Equipment Company, Los Angeles, to be assistant director of production, and Harry L. Gardner, former chief clerk of the Indian Service, to be office manager.

Ickes Says

He is ready to go before the Senate committee which recently investigated the shortage—if asked—but has no intention of requesting reopening of the hearings. Other than this he had no comment on either the investigation or the committee's recent report.

The coordinator's office will press its program to "keep American homes warm this winter." But heavy fuel oil stocks decreased last week by 199,000 barrels, and stocks on hand now are 2,339,000 barrels less than the same time last year.

And, he added, "the Bureau of Mines predicts an 11 percent increase for the last quarter of 1941 as compared with 1940."

The wandering tank cars—20,000 of them—still are wandering. At any rate, the coordinator's office hasn't located them, he said.

Chamber Reports

In a report covering all phases of the oil situation, the natural resources committee of the United States Chamber of Commerce on September 26 told the national industrialists that if full use is made of all possible transportation facilities and there are no further withdrawals of tankers, there need be no serious oil shortage.

At the same time, the committee warned that the Treasury in the near future will direct another attack on the depletion allowances with a view to securing their reduction, a step which it said was not justified.

Reviewing the East Coast situation, as well as the shortage developing along the Pacific, the report held that conditions in those areas, while not yet critical, require the fullest voluntary support on the part of the public respecting relief measures. However, it said, there has gone abroad the misapprehension that a normal overall reduction in the storage of petroleum and its products was tantamount to an actual shortage. Conditions in certain local areas may result temporarily in shortage of products but in view of the many remedial measures available it appears that storage supplies in affected areas will be ample to bridge the transportation disruptions between tanker withdrawals and the necessary replacements or substitutions of transportation facilities.

"Unless this adjustment program is rendered inadequate by further withdrawals of tankers for war purposes, there appears to be no need for other than voluntary reductions of use justified and encouraged by ample and accurate factual information."

The committee expressed gratification at "the recent evidence of the intention of the government to discourage measures before Congress that would affect the normal operations" of the industry. Specifically, it referred to the various "divorce" bills which have been introduced, and pointed out that, "fearing adverse effects upon the defense program from pressure of the divorcement legislation, the petroleum coordinator recently wrote the Senate committee to which the bills in the Senate had been referred, stating his belief that the country's interest would be jeopardized if there were injected into the petroleum problem the necessity of such major readjustments as would be required by the enactment of any of these bills."

The committee commented, "we believe it is applicable to normal times and that the readjustments required by these divorcement bills would be just as harmful then as now."

Extension of the Interstate Oil Compact also was held to be of great significance, and participation therein by all the producing states was called for.

The committee, however, held that any reduction of the depletion allowances at this time would be unwise, but admitted that "it now seems reasonably certain that we can expect a determined attempt on the part of treasury influences" to cut them substantially. This effort, it said, will probably be made when hearings are opened on the administrative tax bill scheduled to come before the House ways and means committee late in October or early in November. "A reduction in depletion allowance is not justified," it was held. "When increased production is demanded for national defense and the costs and hazards of exploration and developments are mounting, the attempt should be defeated promptly and decisively."

Cooperation Noteworthy

The report pointed out that the industry has offered "noteworthy" cooperation in the defense program and the efforts of the coordinator to maintain adequate supplies.

"The extraordinary demands of the rapidly expanding air forces for aviation gasoline are being adequately met, and will continue to be met by enlarged refining capacity for that particular product," it said.

"The petroleum industry is also producing a commodity vital to the defense program, toluol, necessary for explosives, and new facilities as suggested by the National Defense Advisory Commission are being installed with full cooperation of the industry. The same is true of facilities for producing synthetic rubber."

Gasoline Tax . . .

Collections from the federal gasoline tax in August totaled $38,257,259, very close to the record high established last November and $4,500,000 above the July total of $33,720,346, it is reported by the Internal Revenue Bureau.

Receipts from the tax on lubricating oils also increased, from $4,107,326 to $4,604,855, and a slight improvement was recorded in revenues from pipe-line transportation, which advanced from $1,159,203 to $1,175,113.

For the first 8 months of the year, collections from all three taxes were well in advance of the corresponding 1940 period, gasoline returning $241,104,684 against $158,812,225; lubricating oil, $27,642,799 against $22,474,331, and pipe-line transportation, $8,765,720 against $8,041,477, it was reported.

Sanding-Up Problem Solved in New California Completion

By GILBERT M. WILSON, Staff Writer

SUCCESSFUL completion of a California well that previously had defied all efforts of bringing it in on full production due to an unusually difficult sanding-up condition, was accomplished recently through use of a method fairly common in Gulf Coast areas but relatively new in California.

The well was Shell Oil Company's Santa Ana and Fresno Land Company 1-19, the second completion in the recently discovered Raisin City field near Fresno.

Bottomed at 5049 feet, the well had been tested in a 27-foot interval, following the successful shutting off of most of the high pressure, high volume of gas cap that also had been encountered, one location to the north. In this second well the 7-inch water string had been set at 5022 feet.

A potential in excess of 1500 barrels per day was indicated in some of the short formation tests, but upon running a slotted liner it was found that a fine, free-running sand that cut the liner perforations would sand up the hole within a short time after it had been swabbed. Several different types of liners and slotted pipe, each one using slightly smaller openings, were used, but due to the fineness of the sand, trouble persisted.

One of the reasons ascribed to the failure of the application of the conventional type of liner and methods of completing was that in each instance, before the liner could be run in the hole following the drill stem test, the well had to be killed, resuting in the mudding up of the sand back in the formation to such an extent that it could not be kicked out by the formation pressure. After the well was bailed or swabbed down, portions of the sand face would be opened up, but the mud, and the fine sand that followed would again make it necessary to clean out the hole.

Decision finally was made to use a wire-wrapped, ribbed screen and liner with 0.020-inch gauge openings, and to run it into the hole and complete the well by the use of a method that permits the entire liner, screen and packer assembly to be run in on the same string of tubing that is to be left in the well as the flow string.

This method obviates the additional cost of several extra round trips that ordinarily would be required in older methods. Running the liner in on the tubing, washing in the well, and setting the liner packer, is accomplished in a single trip of the tubing. One of the most important advantages of the use of this method is that the drilling connections may be removed and Christmas tree installed immediately after the liner has been lowered below the surface. The remainder of the tubing may be run on through the tree fittings. By use of a special tubing hanger run on the last joint of tubing, the flow string may be hung in the tree at any desired point, following the washing procedure and setting of the packer, after which the casing can be closed in, and production started through the tubing. With the exception of the short interval between removing the blowout preventers and installing the Christmas tree, the well is under control at all times during this procedure.

When the first attempt was made at completing the well with this new method the tubing hanger was not used, and after a short period of washing with the liner on bottom, it was necessary to kill the well again, so that the tree could be installed and the tubing hung in the conventional manner. After the tree and tubing had been installed, the mud again was circulated out and washing of formation resumed.

The well did not respond to the final washing action as well as had been expected, and it was thought the formation might still be "loaded" with a mud cake from the previous attempts at completing.

Because of this unsatisfactory attempt, it was then decided to pull the tubing, recover the screen and liner, and re-complete the well, using the complete patented method, which would involve use of the tubing hanger, thus eliminating necessity for interrupting the washing operations to kill the well in order to install the Christmas tree. An oil-base mud was used this time to kill the well prior to pulling tubing and liner.

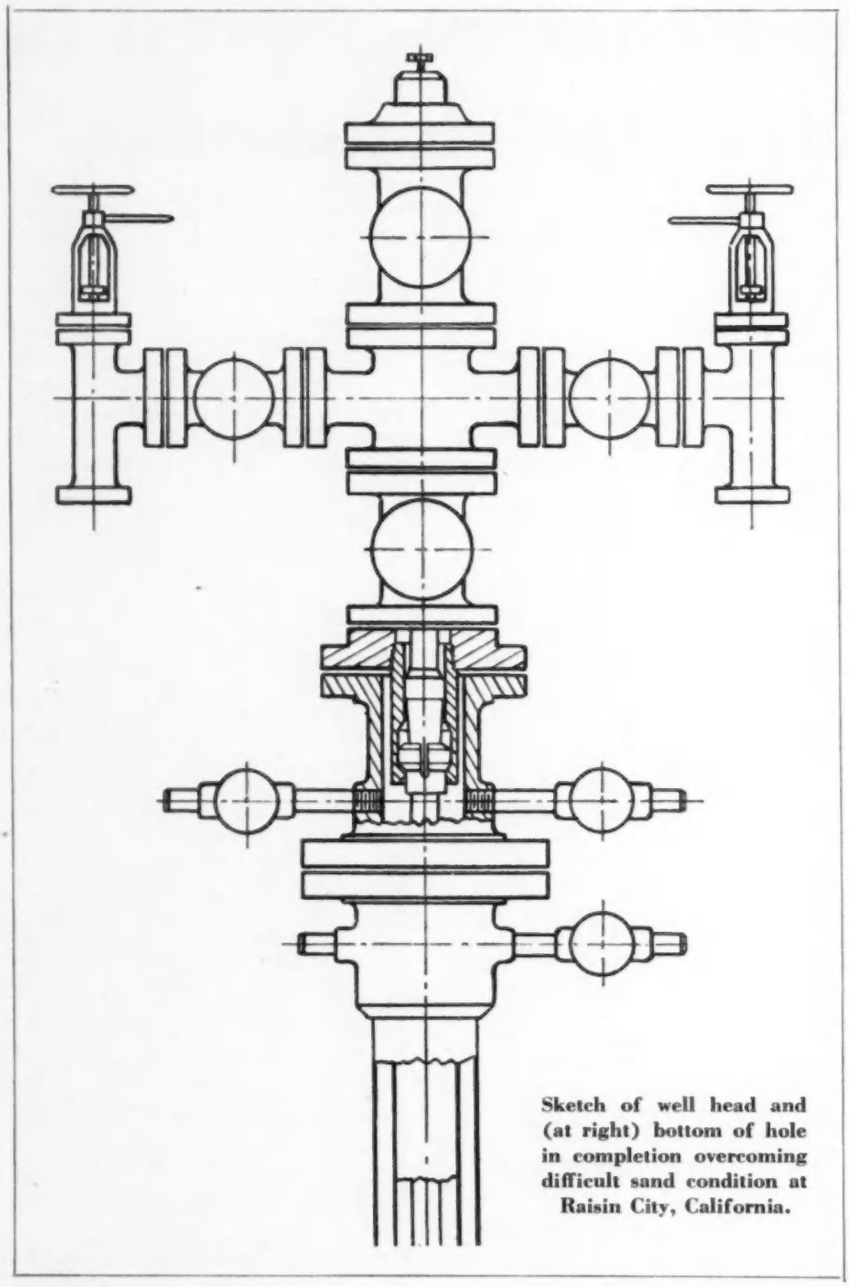
Three drill-stem tests were made before re-running the liner, in order to clean out the formation as much as possible. Considerable mud and sand was recovered. Following this, a suction-type bailer was run in the open hole to remove any loose sand that might have settled into the bottom.

The method employed in finally completing the well was as follows:

A special set shoe was made up on the first joint of screen to be lowered into the hole. The shoe used contains a back-pressure valve and several holes in the bottom of it that enables fluid to be forced through the shoe, permitting the liner to be jetted down past any obstruction that might be encountered in the open hole. The shoe also contains a pressure-tight connection into which the tubing latches while the assembly is being lowered into the well, and which will release the string upon rotating to the right.

The last section of liner to be run into the hole was hung in the rotary slips, and a single joint of tubing, with a special latch-on tool made up on the lower end of it, was run in to the bottom of the set shoe, where four or five turns of the tubing to the left securely anchored it in the bottom of the shoe. Enough tubing was run that it would protrude two or three feet above the top of the liner still hanging in the slips of the rotary table. A packer-setting tool next was made up on the top of the tubing. A section of tubing was then picked up with the elevators, and the packer was pulled up over the section and held by the cat-line while the tubing was screwed up into the setting tool.

The packer was next screwed into the top of the liner, after



Sketch of well head and (at right) bottom of hole in completion overcoming difficult sand condition at Raisin City, California.

which tubing was made and run, being filled with fluid at intervals, and with the tubing hanger being run at the desired point at the top of the string.

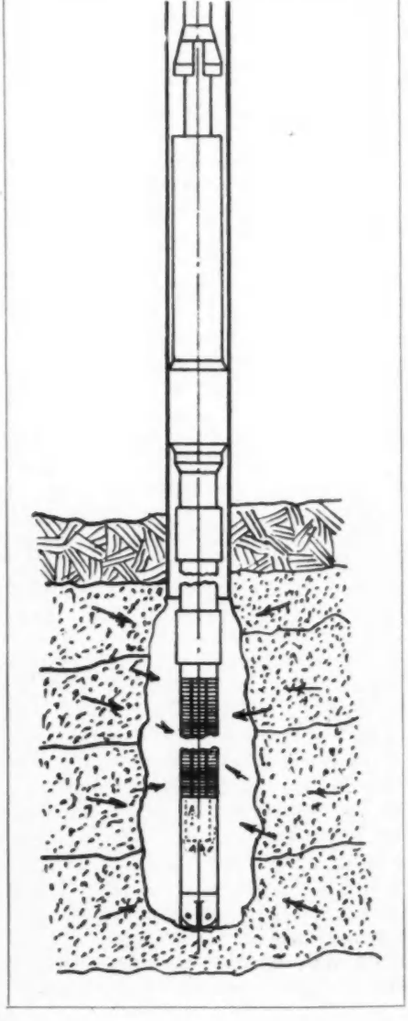
The oil-base mud remaining in the hole was replaced with oil, and washing of the formation and liner was started, carrying mud and loose sand up to the surface between casing and tubing. This operation was continued for approximately eight hours, after which the well began to "kick," and flow by heads. At the end of this time, although the well was already beginning to flow, a small amount of high-pressure gas was injected into the discharge end of the pump in order to liven up the fluid column still more.

After it had flowed for approximately 30 minutes, the pumps were slowed down, and the tubing string was rotated four or five turns to the right to release the latch-on tool from the set shoe on the bottom of the liner. This action closed a positive shear valve in the shoe which shut down the pumps by making circulation impossible outside of the liner. When the pumps were shut down, the driller knew that he was released from the liner and was free to pick up the tubing string, leaving the liner and packer assembly resting at the bottom of the hole.

Still using oil, the inside of the liner was washed for 15 minutes at the same time that the casing was being slowly beaned back on the surface fittings.

The liner packer was set by picking up the tubing three feet, bringing the packer-setting tool in place above the collapsing shoulder, and setting down with the tubing, thus sheering copper pins in the packer and expanding the packer element against the walls of the 7-inch casing. The tubing then was hung in the tree, the tubing landing nipple backed out, and the well allowed to flow through the casing for 30 minutes more. The tubing bean then was opened to flow and the casing closed in.

Attesting the value of this type of completion used on the well, is the fact that after cleaning up, the well demonstrated a potential of 473 barrels per day of 24.3-gravity oil through a 22/64-inch choke.



Effects of Connate Water Upon Ultimate Recovery

By WILBUR F. CLOUD
Professor of Petroleum Engineering, University of Oklahoma

PART 2

THE previous article, Part 1, [THE OIL WEEKLY, September 22, page 33] was confined to a discussion of the characteristics and factors affecting various percentages of oil, gas, and/or water upon the relative permeability and recovery of sands and sandstones, as determined by laboratory gas-expansion and gas-drive experiments. It was concluded that, under similar conditions of testing, ultimate recoveries by use of gas are higher when no connate water is entrained in the pore spaces. Also, that 50 percent ultimate recovery is an average amount of oil to be expected from either consolidated or unconsolidated sands if gas/oil ratios may be disregarded. This discussion will deal primarily with the relationships of oil and water entrainment, as affecting the results of artificial water-flooding of unconsolidated sands.

During the last 45 years surface water has been injected into certain Bradford-sand wells of northwestern Pennsylvania, in order to build up a capillary pressure which would drive a portion of the remaining oil to adjacent wells being pumped. In this area ultimate recoveries to date in the more permeable sections of the sand have been extended to approximately 65 percent of the original oil; whereas, the recovery in sections of relatively low permeability has amounted to about 40 percent. Within recent years water flooding has been applied in other areas, particularly Northeastern Oklahoma.

When artificial water flooding is first applied to partially depleted oil sands, no increase in oil production is immediately forthcoming, because the capillary "creep" of the water is very slow, perhaps less than 100 feet per year in the Bradford area. However, the rate at which water will move through sands will depend primarily upon sand texture, pressure applied upon the injected water, percent of remaining oil saturation, and the relative surface tensions of oil and water. It is characteristic for only oil and no water to be produced at recovery wells during the period when the oil is being pushed as a "bank" in front of the water network. The first appearance of water with the oil usually is accompanied by a marked reduction in oil production, after which the water production increases and oil decreases until the arbitrary economic limit of water-oil ratio is obtained. Regardless of whether the injected water permeates the sand body as a circle, ellipse, or lemniscate apex, the net result is the pushing of oil from several directions toward one pumping well, which is centrally located with respect to the surface pattern of well spacing used. The mechanics of artificial flooding is probably two dimensional, and only slightly affected by gravity in most sandstones.

Factors which affect the entrainment or capillary retention of oil in sands after the gas has been depleted are the surface tension of the oil, the angle at which the oil makes contact with the sand grains, the texture or uniform fineness of sand grains, the surface area of sand grains exposed to oil, and the relative densities of oil and water. The viscosity of the oil is not a prime factor; but if connate water is present at the points of contact of sand grains, interfacial tension will be an important factor.

The amount of connate water remaining fixed to sand grains after oil migrates into the porous reservoir from the source rocks at the time of original migration, will depend upon the radius of each pore space or capillary, the oil-water interfacial tension, the relative densities of the two liquids, and the greater adhesion tension of water, or the preferential wetting of silica by water as compared to oil. Therefore, after a reservoir has been produced by gas energy long enough that the oil contains no more dissolved gas, the connate water will still remain fixed until disturbed by edge-water encroachment or natural water flooding, which will change the oil-water "curvature" at the interface in

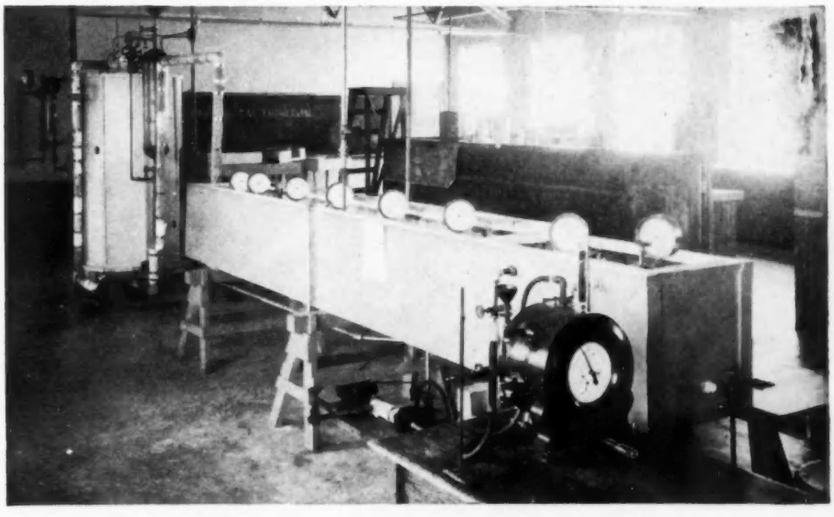
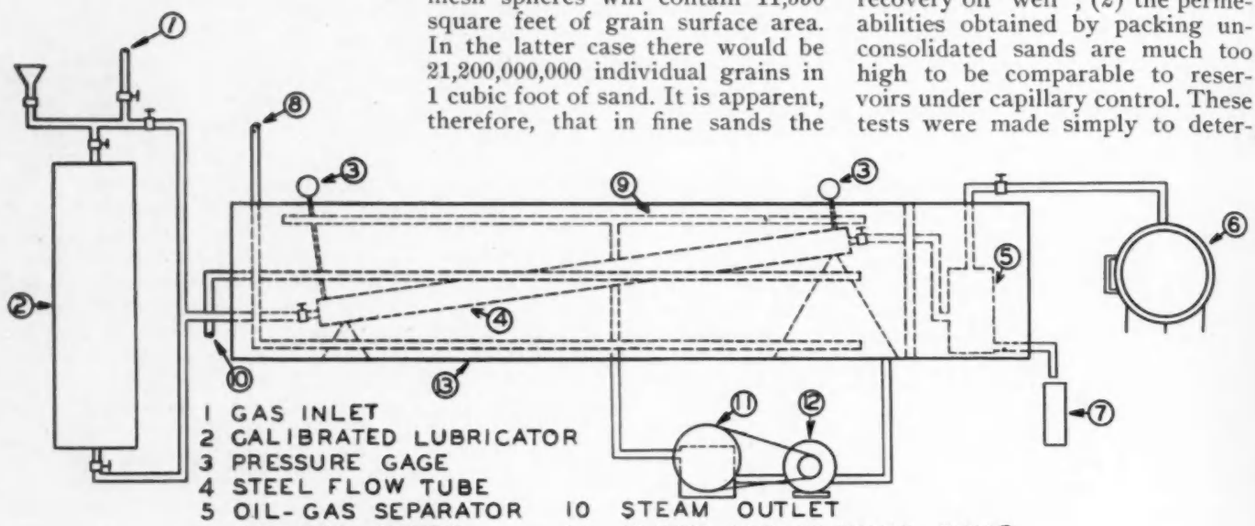


FIGURE 3

each pore space. The difference in adhesion tensions of oil and water to the sand grains constitutes the energy involved in water flooding. This energy will vary as the interfacial curvature varies at the oil-water contact. The rate at which artificial flooding is applied, or natural edge water permitted to encroach, is a very important factor of recovery. Oil movement or pore-space drainage will be affected by the volumetric ratio of interstitial water to oil which in turn evidently controls the capillary pressure. As changes occur in the interfacial tension of the film between the oil and water, the radius of curvature changes, causing the film to recede toward the contact points of sand grains as water is produced.

Just how much connate water can be displaced by either type (natural or artificial) of flooding is a debatable question, and is considered later in the discussion of laboratory flooding experiments. However, it is reasonable to assume that it remains undisturbed in very tight, hard, fine-grained sandstones of low permeability if the surface tension of the encroaching water is comparable to that of the connate water.

In sandstones of uniformly fine texture, the total surface area of all sand grains in a unit volume comprises a high ratio to the total volume; and as the radius of capillary pore spaces decreases, the ratio of surface area to grain volume increases. The converse is true of coarse textured sands. As an example, if we assume spherical sand grains of 48-65 mesh, average grain diameter of 0.0099 inches, 1 cubic foot of this sand at 20 percent porosity, will contain 8240 square feet of surface area; whereas, at the same volume and porosity, 100-150 mesh spheres will contain 11,550 square feet of grain surface area. In the latter case there would be 21,200,000,000 individual grains in 1 cubic foot of sand. It is apparent, therefore, that in fine sands the forces acting at the sand grain surfaces are very important factors influencing the rate and amount of movement or retention of oil, gas or water. Considering all factors concerned, it is probable that in fine sands capillary pressure, surface tension of the fluids, and the interfacial tension between oil and water or between a liquid and a solid (sand grains) are most effective; whereas, in coarse or very permeable sands perhaps the force of gravity and hydrostatic pressure of the driving liquid are the most important forces causing oil movement or drainage, because grain surface forces will be less effective. In the average sandstone, therefore, it is reasonable to assume that the magnitude of all surface forces, and not necessarily the superior surface tension of water, is the controlling factor of water flooding.



SCHEMATIC DIAGRAM OF FLOW TUBE AND CONSTANT TEMPERATURE BATH

FIGURE 4

Laboratory Recovery Procedure

It is not contended that the laboratory experiments performed in connection with this investigation approach a similarity to artificial water flooding. This is impossible for several reasons, the two principal ones being (1) underground water-flood networks cannot be simulated because the driving liquid (water) is confined by the inside walls or surfaces of the sand container, resulting in a very small lateral spread and no convergence from several directions toward the recovery oil "well"; (2) the permeabilities obtained by packing unconsolidated sands are much too high to be comparable to reservoirs under capillary control. These tests were made simply to determine if connate water entrained at the contacts and on the surface of sand grains has any effect upon ultimate recovery by water flooding.

Figure 3 shows the external features of the equipment used. Figure 4 is a sectional view of the 3-inch by 78-inch flow tube, constant temperature bath, and auxiliary equipment. The insulated lubricator was used to inject known volumes of distilled water or oil-field brine at steady rates. The meter was used to record any small quantities of gas that might be produced during the flooding process and the gas used for repressuring.

After each test the procedure was to clean and dry the tube, then repack it with similar amounts of clean, oven-dried, unscreened Simpson sand to the various porosities shown in Table 2. The sand filled tube was then placed in a vertical position and completely saturated with either crude oil or distilled water, depending upon the type of test desired. After oil saturation the tube was connected into the temperature bath, and the temperature stabilized at 130° F. The

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discharge valve was then opened, to determine the percent of "natural" flow resulting from the increase in temperature between that of the laboratory and 130° F. Usually this amounted to approximately 7.5 percent of the original saturation. The next step was to open the input valve, and repressure the sand with natural gas, after which water flooding was applied.

When a quantity of connate water was desired in the sand column, the tube was first saturated with water, then the major portion of this water was displaced by a known quantity of crude oil. The volume of saturation water minus the water displaced divided by the total pore volume provided the percent of connate water. It was assumed that this water was distributed uniformly throughout the sand body. At this stage the sand was repressured with gas, as mentioned in connection with the water-free sand tests. Water-flooding then followed.

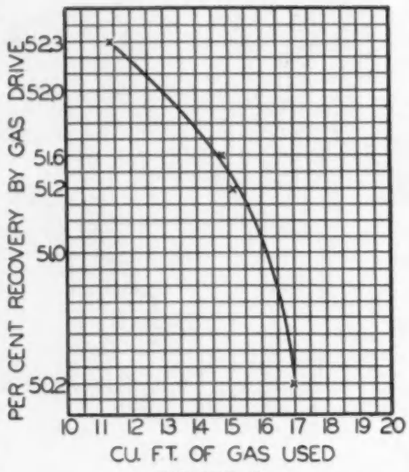

FIGURE 5

Water-Flood Data

The summary of all tests has been compiled in Table 2. The tests involving the use of connate water have been recorded as "a" group, on the left side of the table. It should be mentioned that recoveries of "a" and ""b" groups under Item 5 are not comparable, because in all water-free tests the gas drive was ceased when the gas/oil ratio approximated 2300 cubic feet per barrel.

Judging from percentages of recovery by both secondary processes, Item 14, the presence of connate water had only a small effect upon ultimate recovery. The average was 73.4 percent in tests of group "a"; whereas, the average recovery in the water-free group was 75.0 percent. It might be probable that this difference, which was evidently beyond the range of experimental error, was due to the difference in the surface tension of the connate water and the brines used as the driving liquid in the majority of the tests.

There is some evidence that the Lower Simpson brine, specific gravity 1.19 and solid content 298,497 p.p.m., caused some precipitation or plugging, see Item 10, Item 11 and Item 13, tests 1a, 2a, 3a.

Items 10 and 13 of the "b" group might indicate that it will be beneficial not to wait until a sand ceases to produce economically before applying water flooding.

Item 5 group "a" and Item 6 of Table 1 illustrate the effect of temperature upon the recovery by gas drive. Figure 5 portrays the effect of gas by-passing on the percentages recovered.

Water flooding after gas drive causes very little reduction in crude oil gravity. There was no consistent relation between water drive recoveries and water-oil ratios. Apparently recoveries by water flooding are not correlative with porosity, but permeability seems to be directly related. Also, the rate at which water was injected portrayed no tangible effect in this sand except the time factor.

In all these tests the recovery by water-flooding was abnormally high, as compared to that of consolidated sandstones. This indicates that in highly permeable sands the capillary pressure is low, and all the forces acting at the contact points of sand grains are subordinate to the hydrostatic pressure of the driving liquid. It is presumed that the 26.6 percent of the original oil remaining existed as a very thin film around each sand grain, the amount of retention of each grain being dependent upon capillary radius and grain surface area.

TABLE 2

Effects of Connate Water Upon Secondary Recovery Processes

Item No.	DETAILS OF TESTS	SANDS WERE WATER-WET				NO CONNATE WATER USED				
		Test 1a	Test 2a	Test 3a	Test 4a	Test 1b	Test 2b	Test 3b	Test 4b	Test 5b
1	Porosity of compaction	31.6	29.8	30.4	29.7	31.2	31.6	30.8	31.6	31.3
2	Dry (specific) permeability	5.15	5.20	6.28	4.80	5.10	4.90	6.70	5.38	6.25
3	Percent connate water	22.0	21.1	19.6	20.3	....	....	....	....	....
4	Pressure differential during water displacement by oil, p.s.i.	17.5	12.5	12.5	10.5	....	....	....	....	....
5	Percent of oil recovered by gas drive	51.4	52.3	51.6	50.2	43.0	33.6	33.8	36.4	37.0
6	Cu. ft. of gas used	15.2	11.3	14.8	17.0	8.5	9.7	9.5	10.4	8.8
7	Gas-oil ratio of gas drive	3,310	2,700	3,270	3,950	2,450	2,300	2,300	2,300	2,300
8	Pressure differential during gas drive, p.s.i.	7.8	8.0	5.5	10.0	5.0	11.0	6.0	9.0	6.0
9	Additional water recovered with the oil during gas drive, Cc.	None	36	None	None	....	....	....	....	....
10	Percent of original oil remaining in sand after gas drive	48.6	47.7	48.4	49.8	57.0	66.4	66.2	63.6	60.7
11	Percent of **remaining** oil recovered by water-flood	45.4	30.3	41.7	49.6	56.3	55.2	75.4	68.6	67.6
12	Water-oil ratio at time flooding was discontinued	12.6	9.45	9.59	8.95	5.0	5.0	5.60	5.0	5.0
13	Percent of **original** oil recovered by water-flood	22.2	20.5	20.2	24.8	32.0	36.6	43.9	40.0	38.7
14	Total percent recovered by **both processes**	73.8	72.8	72.1	75.0	75.0	70.2	77.7	76.4	75.7
15	Total recovery on basis of Bbl. per Acre-Foot	Average equalled 1,730				Average equalled 1,820				
a	A.P.I. gravity of original oil	40.0	....	....	....	40.0	....	....	....	....
b	A.P.I. gravity after gas drive	39.1	39.3	39.1	39.0	39.5	39.4	39.4	39.4	39.5
c	A.P.I. gravity of remaining oil after water-flooding	39.0	39.3	39.1	39.0	39.5	39.4	39.3	39.3	39.5
d	Temperature maintained during all tests	130° F.	....	....	....	130° F.	....	....	....	....
e	Surface tension of original oil @ 100° F., dynes per cm.	29.5	....	....	....	29.5	....	....	....	....
f	Surface tension of water used, @ 130° F., dynes per cm.	64.5	72.5	72.5	72.5	72.5	64.5	72.5	72.5	69.1
g	Type of flood water used	Distilled	Lower Simpson brine	Lower Simpson brine	Lower Simpson brine	Lower Simpson brine	Distilled	Lower Simpson brine	Lower Simpson brine	Wilcox brine

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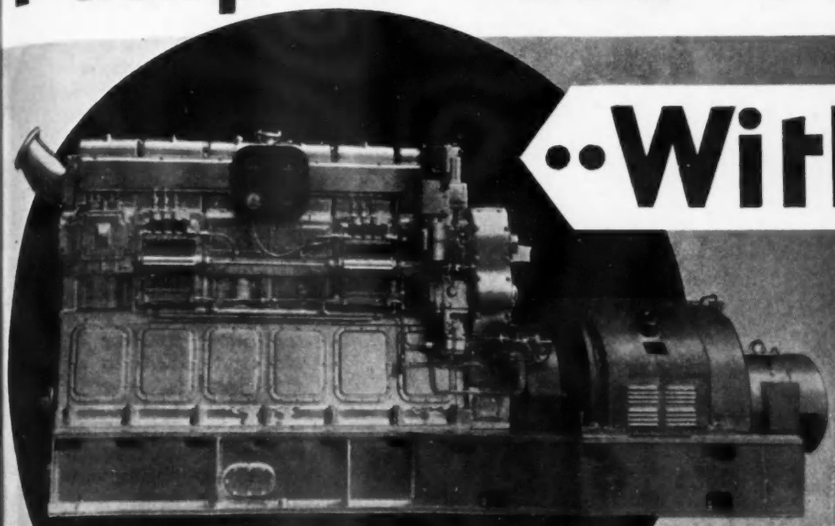

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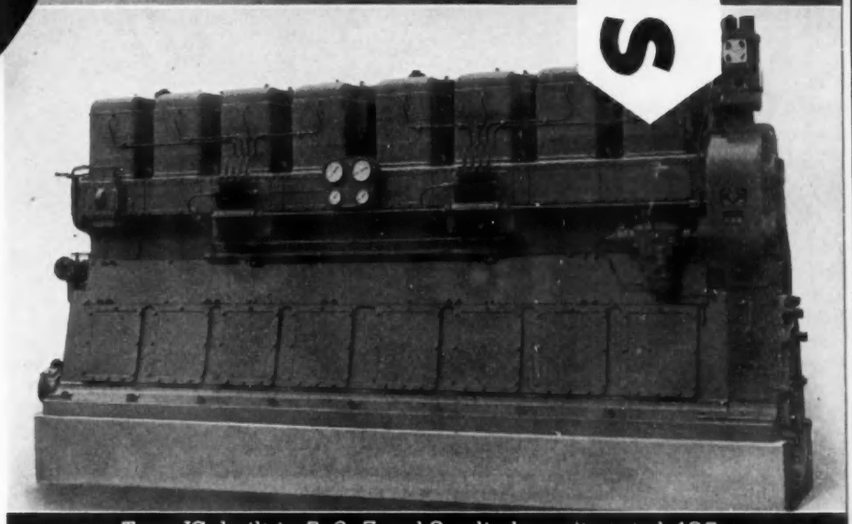

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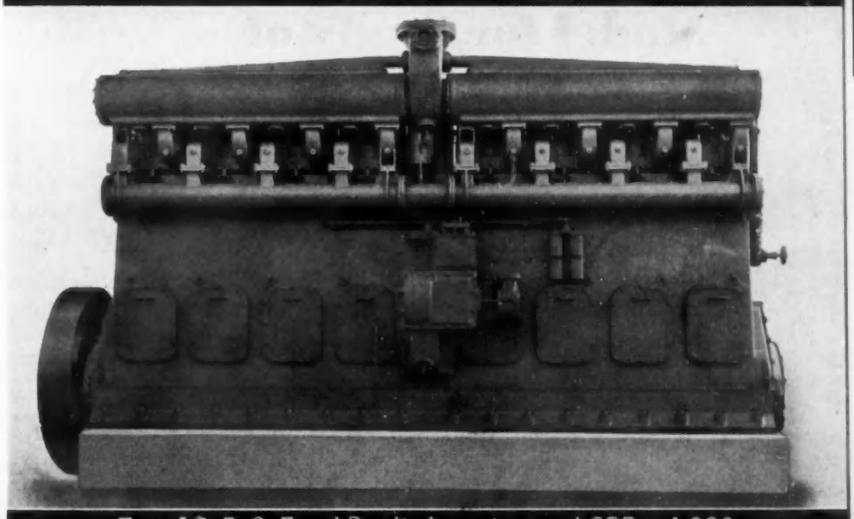

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ALTHOUGH various models have been constructed to study fluid flow they have dealt primarily with single, homogeneous fluids. A 5-spot model has been designed and constructed for the purpose of studying the flooding of an unconsolidated sand. The apparatus is made of transparent Plexiglass so that the actual flooding patterns can be seen during various stages of the flood, and the model is adaptable to various pattern arrangements.

The actual water flooding of Pennsylvania crude oil from an unconsolidated sand is shown in a series of photographs taken during phases of the flood. They show the method of fluid migration from input to producing well. They also indicate the extent of the "dead areas" after the recovery period has ended. Curves are given to show the actual volumes of oil and water produced and the water-oil ratios during production.

Apparatus built for this study, shown in the photograph, is referred to as Figure 5 in the text.

By J. S. LEVINE, L. T. BISSEY, S. T. YUSTER

Department of Petroleum and Natural Gas,

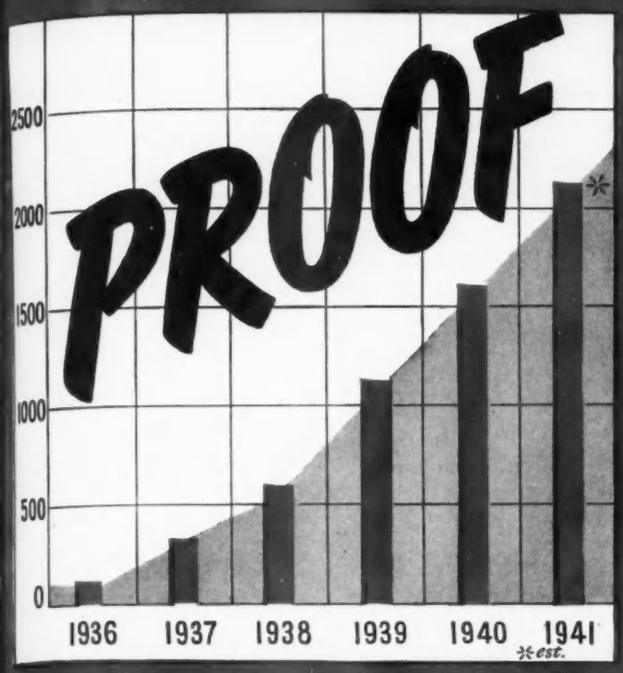
The Pennsylvania State College, State College, Pennsylvania

Model for Study of *Oil Recovery Problems*

MODELS of various types for the study of oil field problems have been used for some time by research laboratories. The principle of the analogy between the flow of electricity through a conductor and the flow of a fluid through a porous medium has been applied by constructing foil models,[1] where the sand permeability and thickness are constant throughout the field, and electrolyte[2] models, where the permeability capacity of the sand varies horizontally. As important as the results have been from such studies, they only apply to single fluid flow, that is, with the sand 100 percent saturated with one fluid. This is not the true condition in the field.

A method[3] has also been developed for a qualitative study of the advance of an interface through a porous medium by visual means. Application is made of the color change of an indicator substance by an ion as it migrates in an electrical field. Again the information gained is useful but the analogy between the experiment and field conditions is not too exact. No account is taken of such factors as the difference in viscosity between the fluids involved, surface forces, and changes in effective permeability.

Since a knowledge of the movement of a flood front is of great importance in understanding the water-flooding process, an experimental 5-spot model was designed and constructed for the purpose of



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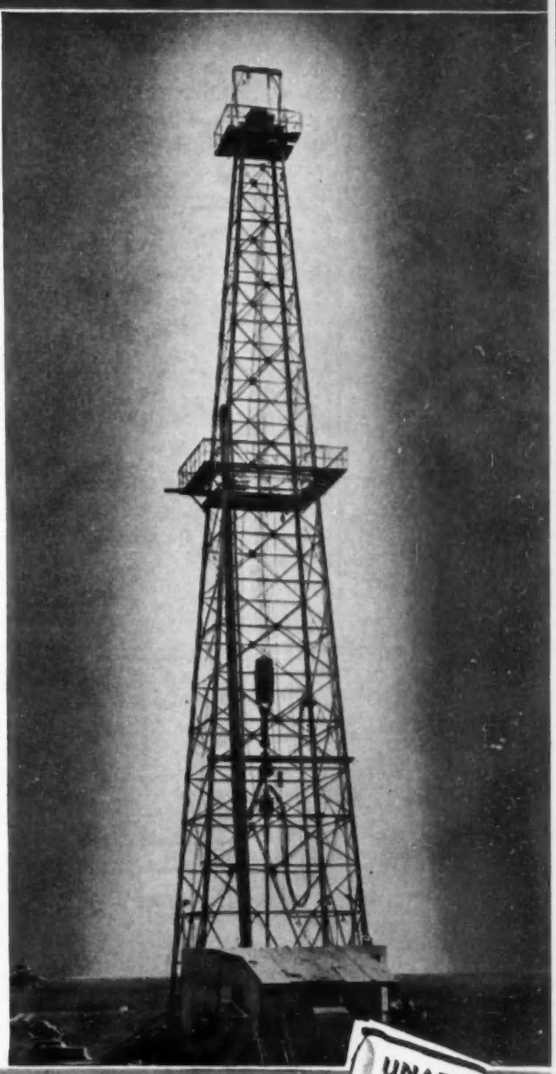


UNIVERSAL ATLAS OIL-WELL CEMENTS

studying the flooding of unconsolidated sand. The apparatus was built to represent a maximum of nine 5-spots as shown in Figure 1(a). It consists essentially of two pieces of Plexiglass, a plastic material resembling glass in transparency but being somewhat elastic. These Plexiglass plates are held together around the edge by a brass frame at a uniform distance of 1⅛ inches apart. The large dimensions of the model are 24 x 24 inches. The plates are so drilled as to accommodate 25 "wells" equally spaced to represent the nine 5-spots. The construction details of these "wells" are shown in Figure 1(b) and Figure 2 is a photograph of one of them. The perforated section is actually covered with 200-mesh bronze screen. The entire well is silver-soldered into a single unit and is very sturdy. They are made to act as a support for the Plexiglass plates, to keep the sand from running out, and to be an input or producing well. The brass frame also contains these wells as an integral part. The corner wells are "quarter" wells and the edge wells are "half" wells so that a complete area of symmetry is obtained on all 5-spots. In one corner there is an opening for loading the apparatus with sand. The entire apparatus is made leak tight by means of Neoprene gaskets and countersinking of the wells into the Plexiglass. The distance between the centers of an adjacent input and producing well is 5⅝ inches while the well itself has a radius of 5/16 inch. This gives a ratio of well spacing to well radius of 18 to 1.

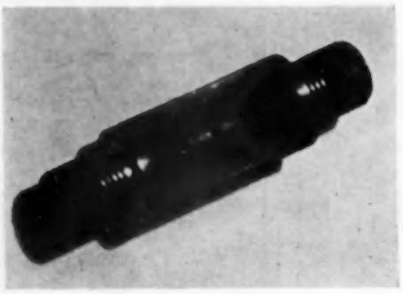
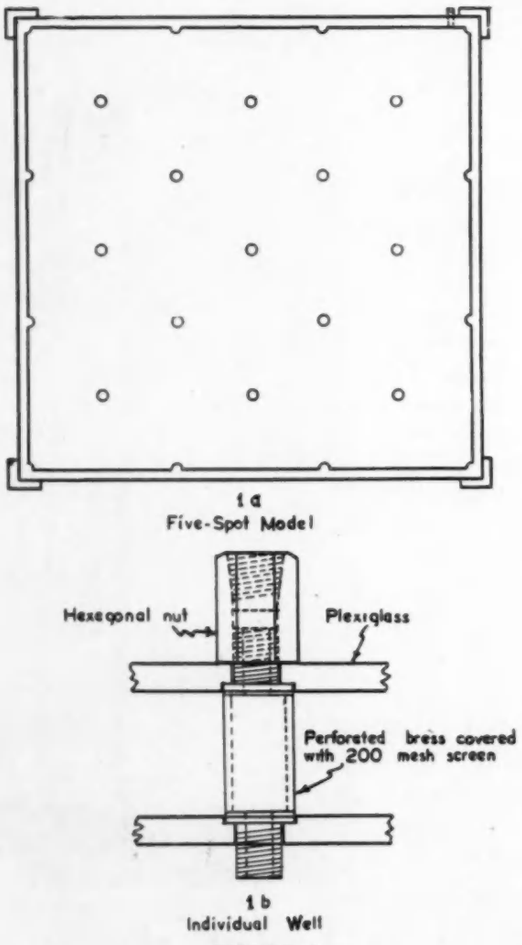


FIGURE 2

Inasmuch as the model itself was the first built and therefore in the nature of an experiment, considerable difficulty was encountered in the building and assembling of the parts. Many novel ideas were incorporated so that the apparatus would be as adaptable as possible to a varied pattern arrangement and yet not be too complicated for efficient operation.

The problem of obtaining sand for filling the model was a serious one. It was desired to fill it with a clean white sand of one rather closely cut fraction. About 35 pounds of sand are required for each filling. Several sand companies were contacted but none were able to furnish the sieved sand. Finally, it was decided to "fractionate" the sand in the laboratory by means of small standard sieves but since this procedure and the subsequent washing and firing of the sand would take several months, an unsieved sand was substituted in order to make a trial run. This sand contained sizes from about 40 mesh down to 170 mesh with a preponderance of the larger grains.

During the loading, the model was held in a position so that the vertical axis ran through a diagonal. The apparatus was held rigid in a heavy frame and kept constantly vibrating by means of a vibrating table as shown in Figure



1a
Five-Spot Model

1b
Individual Well

FIGURE 1

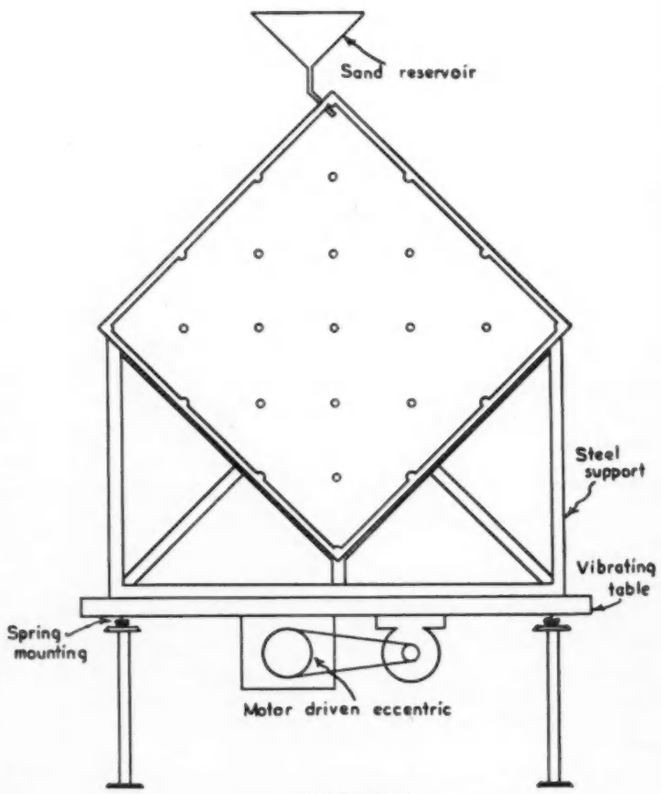
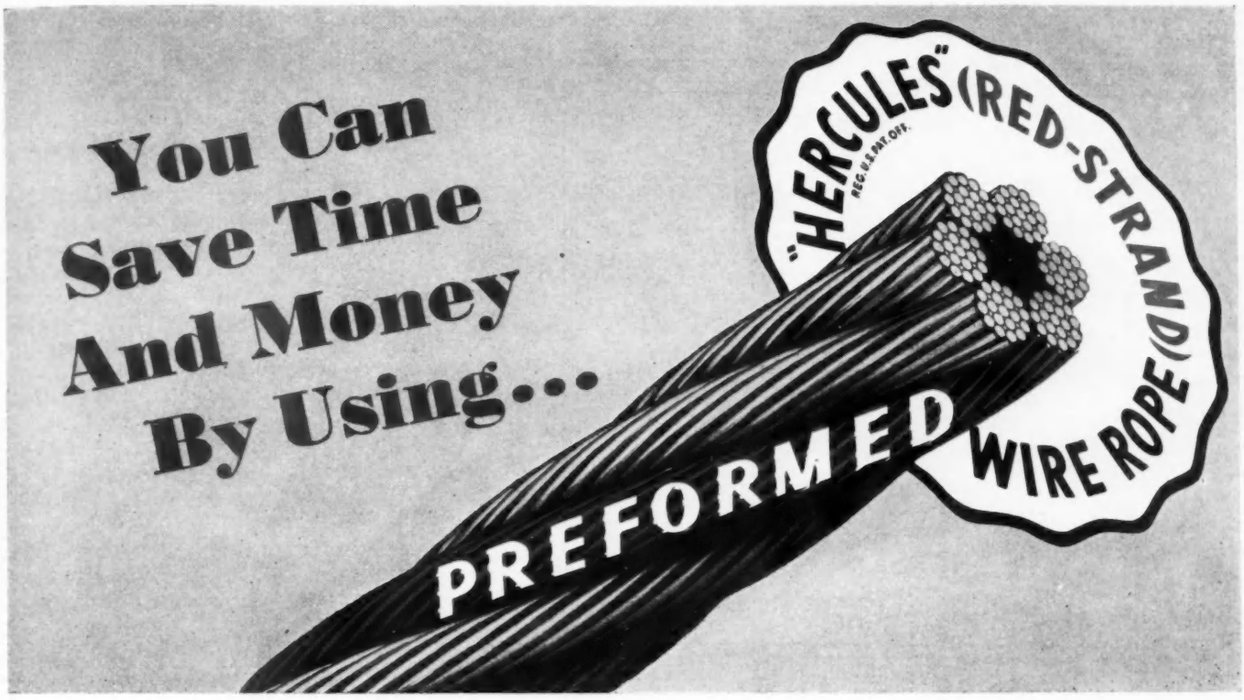


FIGURE 3
Method of loading with sand



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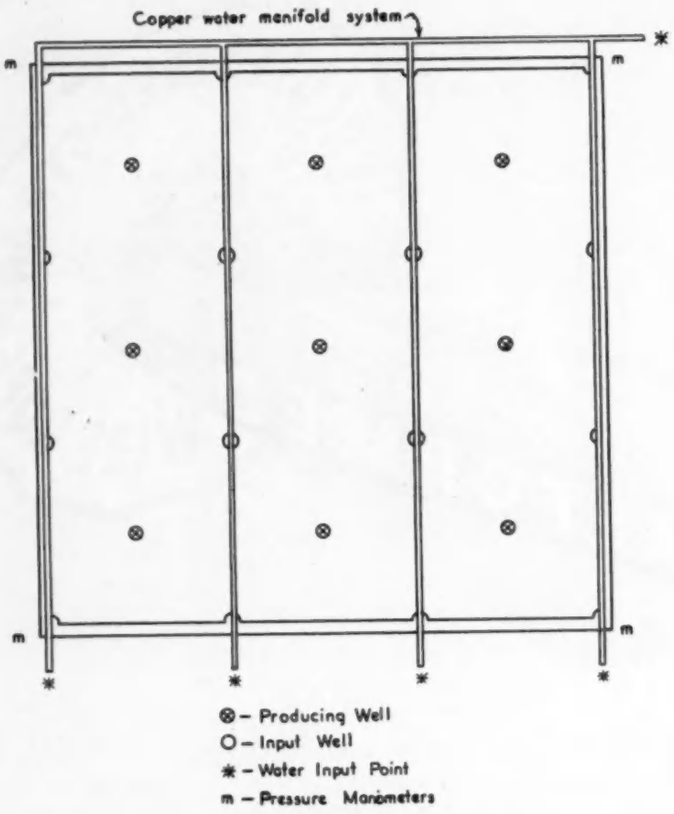

FIGURE 4
Pattern arrangement for initial waterflood

3. The sand was fed slowly in from the top and allowed to fall into place. After the model was filled it was allowed to stand a few days and then vibrated some more. It was found that the sand seemed to pack in tighter. This was explained as being due to a bulging of the Plexiglass walls so that the actual volume increased. To overcome this as much as possible an internal air pressure was applied to bulge the walls to a maximum and the apparatus was vibrated with the pressure on. Additional sand was then poured in. This procedure was repeated several times until no additional sand could be put in. On a basis of the calculated volume and the weight of sand required to fill the model, the porosity was calculated to be about 36 percent. This was probably slightly lower than the actual value. The sand was found also to have been laid down somewhat in "bedding planes" running along a horizontal plane. This was caused by the large variation in the size of the sand as well as the method of pouring the sand in through a single opening at the top.

An air permeability was run to determine the permeability of the sand using various patterns. An attempt to measure the permeability of each 5-spot failed because the manifold system carrying air to the input wells was not large enough to permit a large volume of air to pass without a high pressure drop. Hence, the inputs were arranged so that the apparatus was one 5-spot, that is, the wells at the four corners were air inputs and the one at the center was an outlet. Several readings taken of this arrangement showed an average permeability of 22.6 darcies. The model was then arranged as one quadrant of a 5-spot with one corner as the input and a diagonally opposite corner the producer. The permeability in this direction was found to depend on whether it was measured in the direction of the bedding plane previously mentioned or across it. As would be expected the permeability was higher in the bedding plane, being 37 darcies in this direction compared to 19.5 darcies in the opposite direction. This is analogous somewhat to the difference in permeability of a natural oil sand parallel and perpendicular to the bedding plane.

The apparatus was saturated with Pennsylvania crude oil by evacuating the air with a vacuum pump and allowing the oil to run in. Considerable difficulty was encountered in completely removing all the air and gas bubbles which remained in the sand. This was finally accomplished by flowing oil under pressure through the sand. Several days were required for this procedure but the sand was completely saturated as far as could be determined. No attempt was made to measure the saturation or actual volume of oil in the sand since such a measurement would have beeen very difficult and subject to many errors. On a basis of the calculated porosity, the model contained about 3500 cc. of crude oil.

In preparation for the waterflood the apparatus was connected as a series of nine 5-spots as shown in Figure 4. All the input wells were connected by means of a manifold system. The flooding pressure was maintained by means of a water reservoir above the apparatus. Since the flooding pressure was to be low, a small hydrostatic head was sufficient. The producing wells were fitted underneath with copper tubing "drips" so that all the produced liquid from each well could be collected and measured. Water manometers were connected to the input wells at the four corners so the pressure at those points could be measured. A photograph of the completely assembled apparatus is shown in Figure 5. Graduates were placed under each of the producing wells to collect and measure the volume of fluid produced from that well. A camera was mounted above the apparatus so that photographs could be taken showing the progress of the flood. A clock was made a part of each picture so that a sequence of exposures would show the flood front as a function of time.

The flooding pressure used was 20 cm. of water above the center plane of the model. Since the model is about 3 cm. thick, this represents a pressure of about 18.5 cm. water pressure on the top surface and 21.5 cm. on the bottom surface. In terms of flooding gradient the pressure used was .68 lb./sq. in./foot from input to producing well along the center plane of the model. It was hoped that the pressure would be the same on all input wells but in actual operation, a considerable pressure drop was found in the manifold system even though the water was intro-

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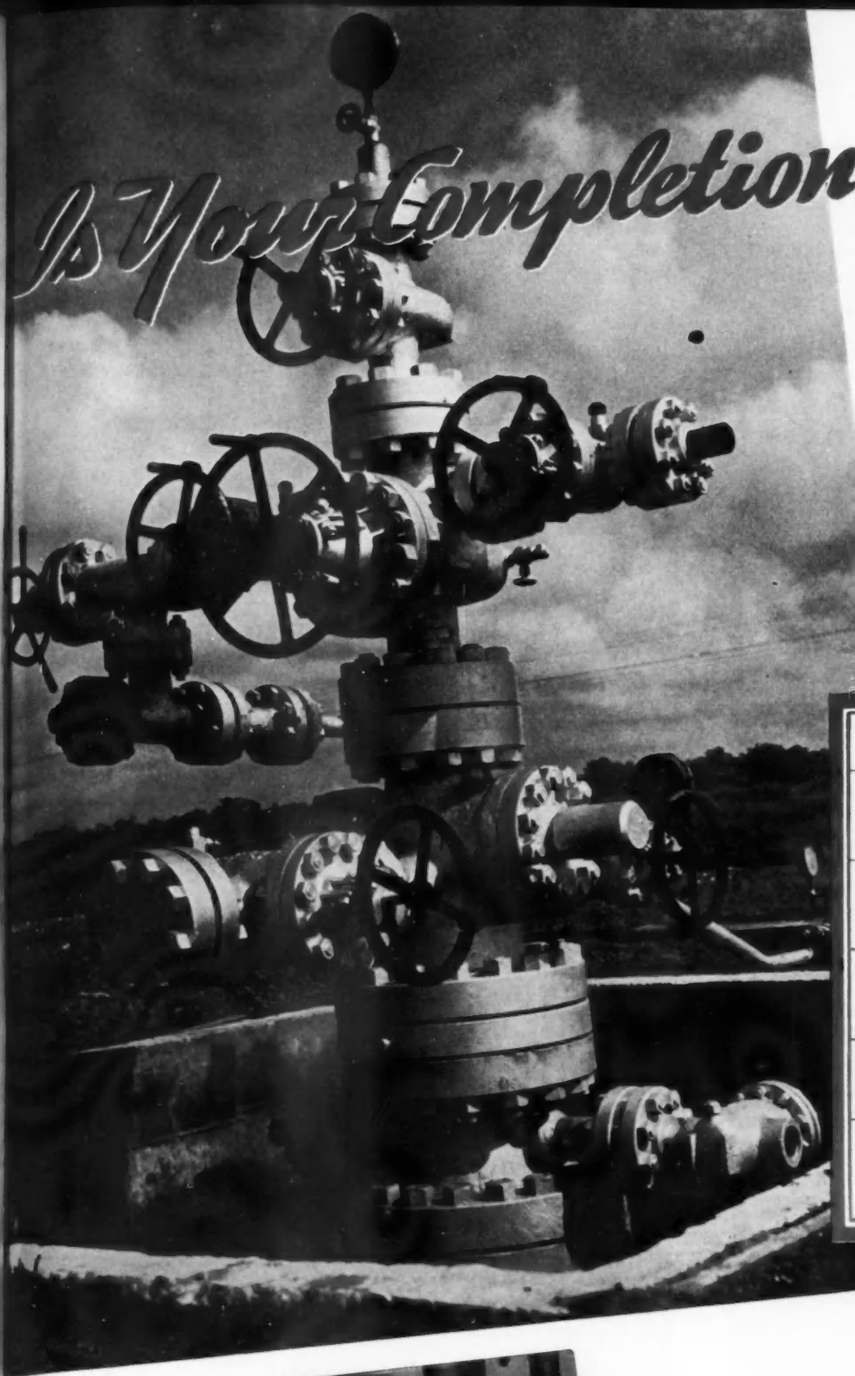

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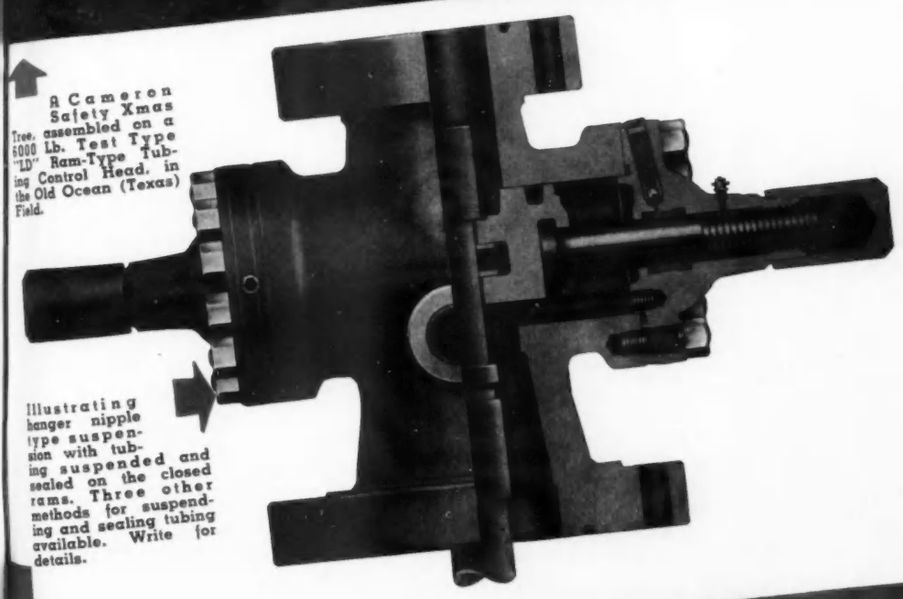

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duced at several points. The pressure in one corner especially, as shown by the manometer, was only about 14 cm. of water. It can be assumed that the surrounding pressures were sub-normal also.

The oil and water production was so rapid that the services of six persons were required to take data, empty the graduates, take photographs, etc. Readings were taken at one minute intervals of the oil and water production. The entire run with this pattern arrangement lasted one hour after which it was shut off because the oil production at that time was negligible.

The results of this experiment are best seen by the series of photographs shown in Figure 6. These show the progress of the flood and the manner in which the flood progressed from input to producing well. The flooding was started at 11:45 and Figure 6 (a) shows the extent of the flood after

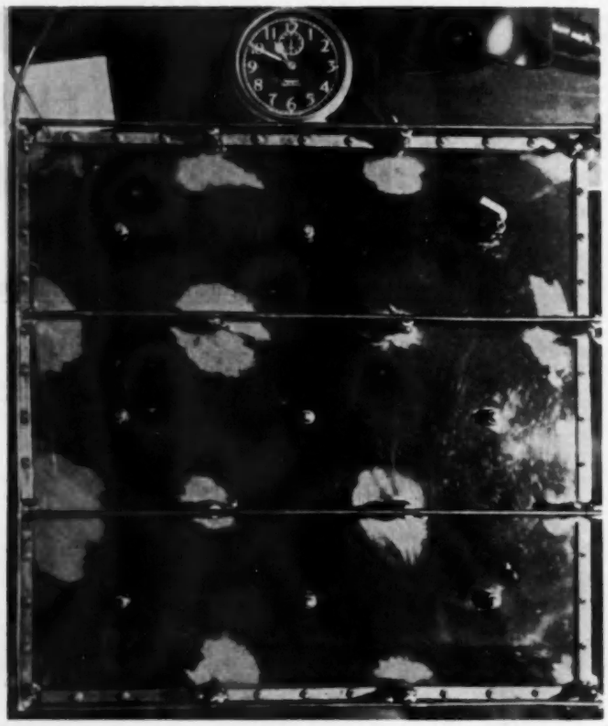

FIGURE 6 (a)

FIGURE 6 (b)

FIGURE 6 (c)

FIGURE 6 (d)

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five minutes. It can be seen that the advance was quite rapid in the first interval and on the top surface extended almost half the distance to the producing well. That it had already reached the producing well on the bottom surface was indicated by the fact that some water was being produced after five minutes. No adequate reason can be given for the greater advance of the flood from some inputs than from others. Only in the case of the input well in the lower left hand corner where the pressure was known to be low was the advance extremely slow and at the end of the run can be seen to have advanced only a short distance. Figure 6 (b) shows the flood after 10 minutes. Three of the inputs in one 5-spot and one in another have already cusped into the producing well. An analysis of the pictures

FIGURE 6 (e)

FIGURE 6 (f)

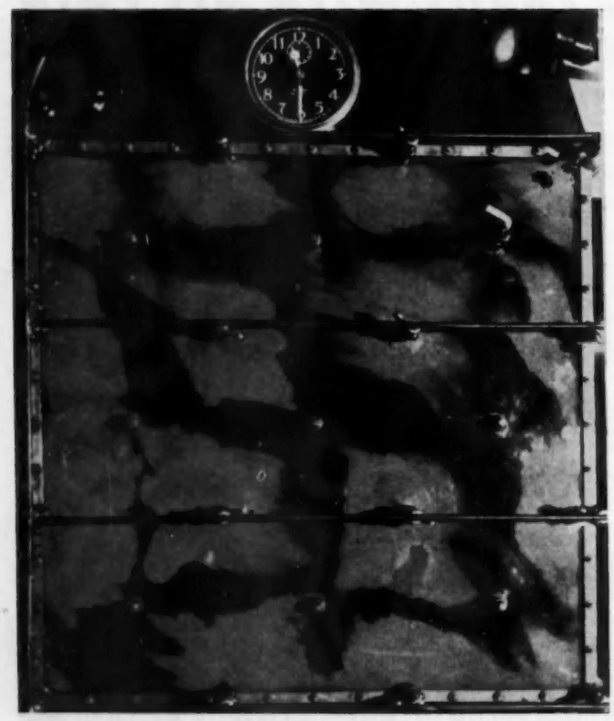

FIGURE 6 (g)

FIGURE 6 (h)

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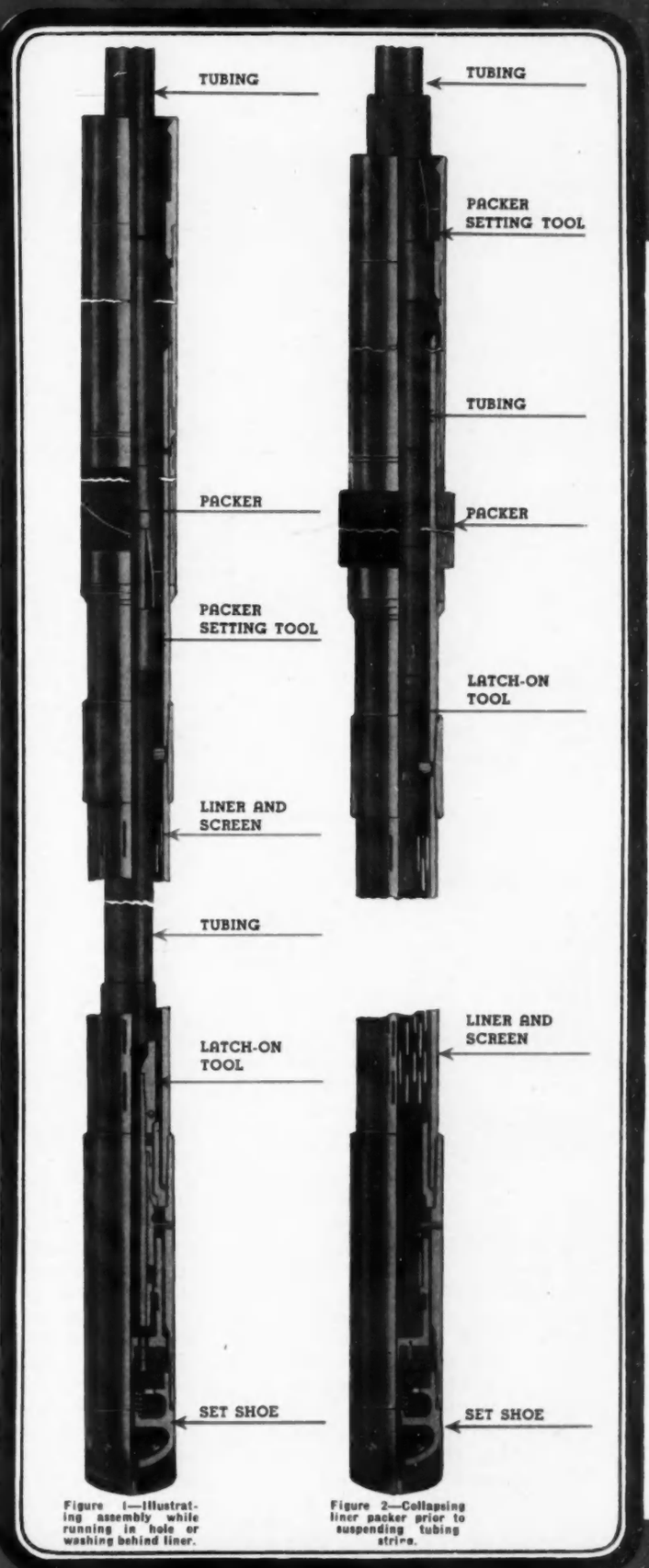

Figure 1—Illustrating assembly while running in hole or washing behind liner.

Figure 2—Collapsing liner packer prior to suspending tubing string.

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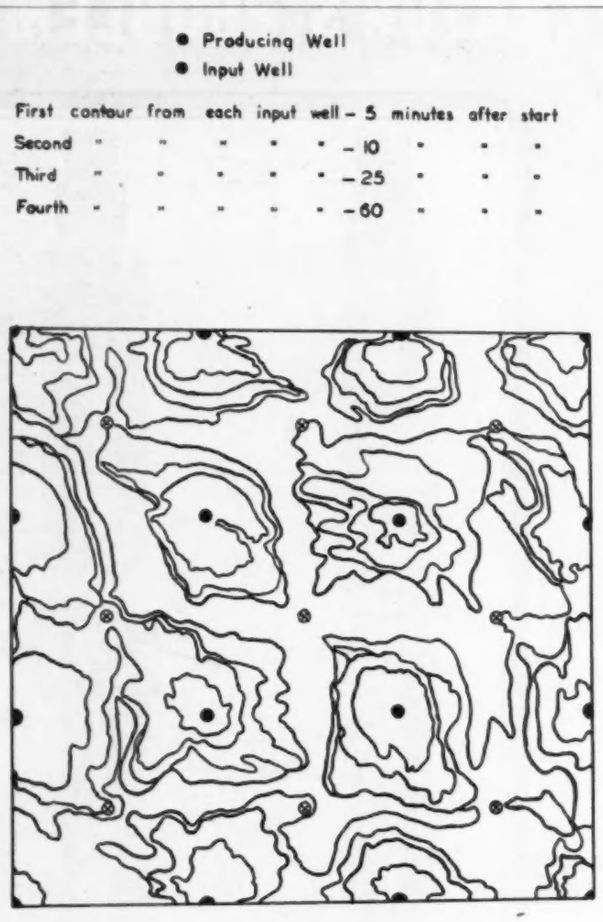

FIGURE 7
Position of water-oil interface during the flood

show that the flood patterns were somewhat elongated diamonds with the long axis running from upper left to lower right. This is due to the fact that the high permeability axis ran in this direction and the flood would be expected to run faster in the direction of higher permeability. The pictures are shown for five-minute intervals. It can be seen that the flood pattern changed very little in the later stages of the flood. At the end of the run the flood front on the upper surface did not seem to extend all the way to some of the producing wells although all wells were producing water. It is interesting to note that, in general, the greatest amount of visible residual oil collected in the so-called "dead areas" between producing wells. This is to be expected because theoretically there is no flow across a point between two adjacent inputs. Also there was apparently more oil remaining on the top surface of the sand than on the bottom. Apparently the underside flooded out more completely because of the higher pressure there. The center 5-spot seemed to have the greatest amount of residual oil but it also produced a larger amount of oil than any of the others. Figure 7 shows the flooding contours for four time intervals as taken from the photographs and gives an overall indication of the relative flood pattern.

Figure 8 shows the cumulative production as a function of time. It can be seen from Curve 1 that the oil production was quite rapid in the first 15 minutes and then slowed up considerably after the water production started. After only 20 minutes about 76 percent of the oil was produced compared to that produced after 60 minutes. This represents about 66 percent of the total oil originally in the model. Curve 3 shows the cumulative water production. After about 40 minutes the rate reached a maximum and thereafter was fairly constant. Curve 2 shows the differential water-oil ratio for each minute interval. The ratio increased gradually up to about 45 minutes at which point it curved sharply upward. Extrapolation of the cumulative oil production curve would indicate a maximum production of about 3300 cc. of oil if the run had been continued until no more oil was produced. This would be approximately 94 percent of the total oil in the model. However, the steepness of the water-oil ratio curve indicates the impracticability of continuing the flood until this amount of oil has been produced.

If production curves were drawn for each producing well they would show the same general trend as shown in Figure 8. Seven of the nine 5-spots produced a comparable volume of oil. The two remaining ones produced somewhat less. It is interesting in this respect to note that while the oil production varied only about 25 percent from the highest to lowest 5-spot, the water production varied about 375 percent, that is, the well producing the most water produced, in the same length of time, 3.75 times as much water as the one producing the least water. This further bears out the fact that the major part of the oil is produced in the early stages of the flood when the water production is low, and after the water breaks through it carries relatively little additional oil with it. The cumulative water-oil ratio for individual 5-spots varied from a low of 2.4 to a high of 7.3 but the corresponding increase in oil production was only 25 percent. The 5-spot having the low water-oil ratio was in the area in which the input pressures were lowest and the total water produced would be expected to be low. The photographs of the flood show that this area flooded slower than the others.

After this initial flood the apparatus stood idle for about two weeks. During this time it was noted that some rearrangment took place. Some oil seemed to spread out along the top surface and the residual oil areas become somewhat fainter. This behavior was no doubt due to a gravity separation of the oil and water. It was decided to reflood the apparatus at 20 cm. water pressure to determine if any additional oil could be removed after this rearrangement. Approximately 200 cc. more oil was recovered in 20 minutes. The average water rate was lower than in the original run indicating some sort of Jamin action due to the rearrangement. Most of the pro-

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FOR SERVICE

duced oil came through in the first few minutes. The oil represented an increase of about 7 per cent over the original production.

The flooding pattern was then rearranged as shown in Figure 9 in an attempt to flood out the "dead areas." Only one producing well was used, that being in the center of the model. At a pressure of 20 cm. on all input wells only a trace of oil was recovered in 30 minutes operation. Even increasing the pressure to 115 cm. of water produced no additional oil. The water rate at this pressure was about 215 cc. per minute.

When the apparatus was taken apart it was noted that the visible spots of oil existed only near the surface and did not extend uniformly down into the sand to any depth. The sand appeared well flooded. On a basis of the measured recovered oil of about 3275 cc. and an initial content of 3500 cc., the recovery was approximately 94 percent. To check this value to some extent an aliquot of sand was subjected to an A.S.T.M. distillation. The results showed a residual oil content of 6.8 percent or a recovery of about 93 percent which agrees very well with the value calculated on another basis. It is interesting to note that this total recovery of 94 percent made at both low and high pressures is approximately the same value as was obtained in extrapolating the low-pressure oil production curve to infinite time.

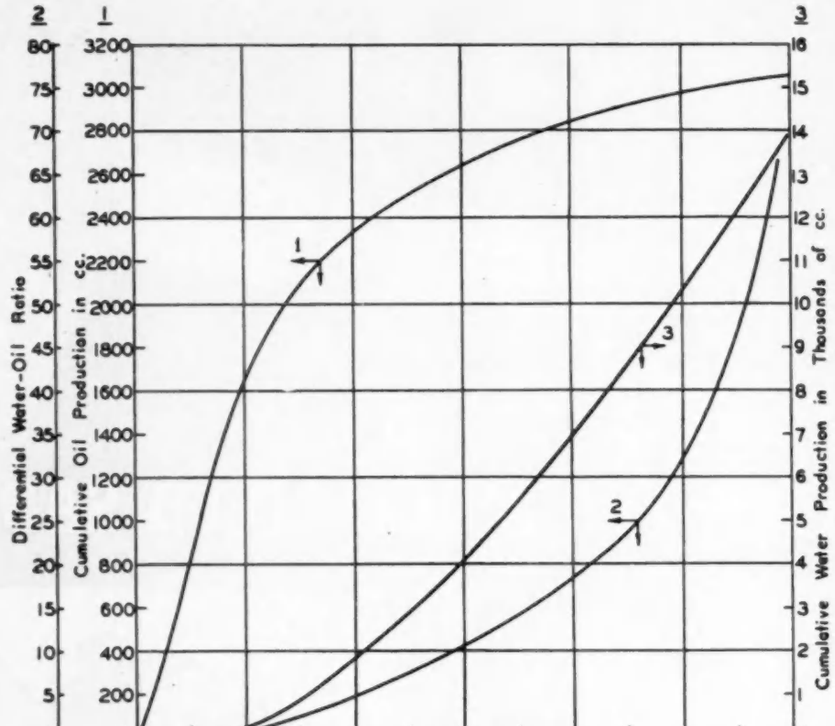

FIGURE 8

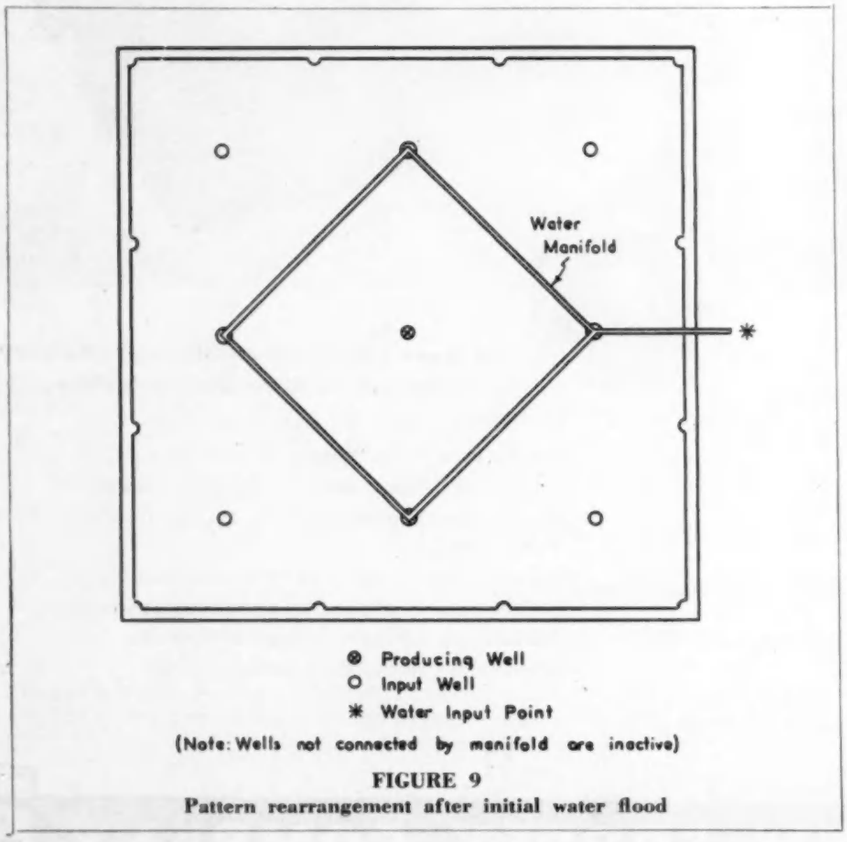

FIGURE 9
Pattern rearrangement after initial water flood

The value of this experiment lies chiefly in the qualitative results obtained from the photographs of the flood. While not startling in themselves they bear out theoretical conclusions as to the manner in which a 5-spot pattern is flooded. The experiment also shows that most of the recovery is obtained in the early period of the flood and that once water is produced, the oil production decreases rapidly. The results would also indicate that pattern rearrangement will produce little residual oil. However, this conclusion is not entirely valid since it undoubtedly depends upon the amount of residual oil present. In this case the initial recovery was high so there was little oil remaining. The recovery was higher than would normally be expected and greater, in fact, than previous flooding of unconsolidated sand had produced.

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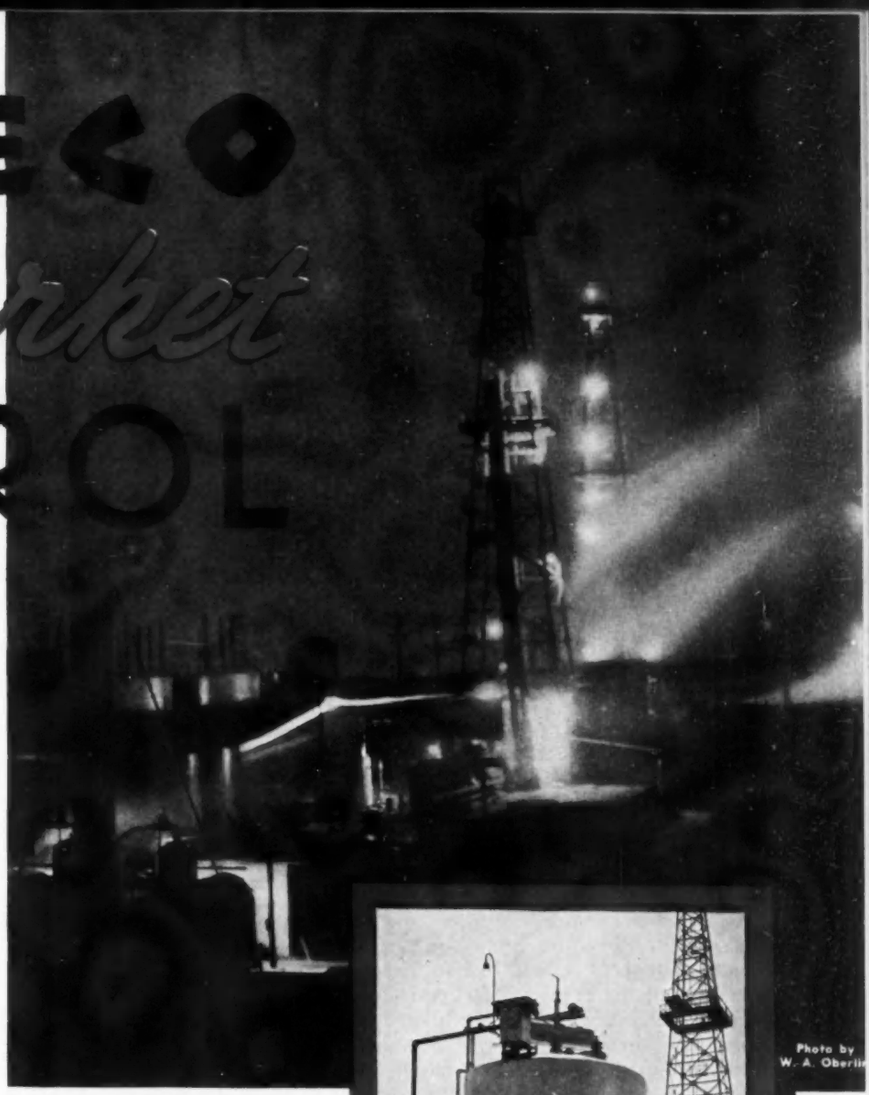
PETRECO *Pre-Market* CONTROL



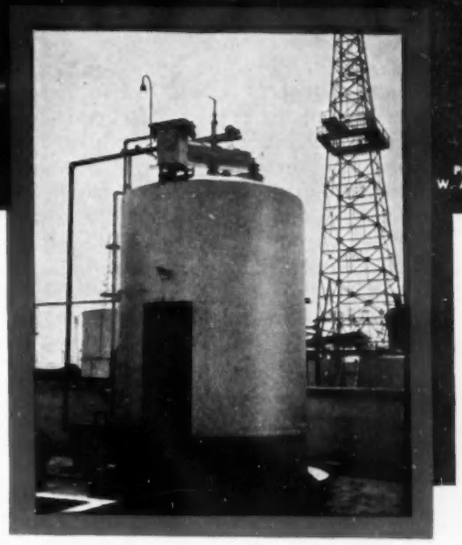


Photo by W. A. Oberlin

As crude oil is produced, various factors affect its potential API gravity and physical characteristics, thereby determining its final selling price. The age and depth of the well, the location of the well in the field, the geographical location of the field, and the method of production, all exert some influence in that direction.

For a profitable sale, crude oil must have a low water and sediment content, and its ultimate price per barrel usually is established by its API gravity. These specifications are made by the buyer, but the producer's ability to meet them often is determined by proper producing and handling of the oil and by efficient dehydration methods.

Natural factors . . . such as the age, depth and well location . . . seldom can be changed. But more and more producers are learning the outstanding advantages offered by Petreco which overcome these set factors. Lowest possible cut . . . highest shipping gravity . . . minimum volume loss . . . it is for the economical control of all these that the Petreco Process is utilized. And it is in this control that Petreco engineers specialize.

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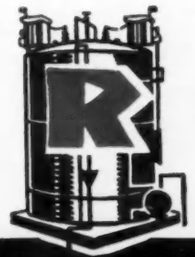


PETRECO

DEHYDRATING **DESALTING**

The Swimming Pool

El Centro

By MRS. O. L. RAYMOND

SOME 360 miles from the Caribbean coast of Colombia in South America, up the shallow, wandering Magdalena River, only six or seven degrees from the equator, lies the oil field of Tropical Oil Company at El Centro. In the low jungle lands where the oil is found, one would hardly expect to find a pleasant place to live, and yet such is the transformation that this huge industrial development has wrought. Where once was only dense tropical jungle scarcely populated by other than wild life, there is now a fully integrated and thriving community of nearly 10,000 people. But a few short years ago it took weeks by ocean and river boat from New York and today barely three days by air, with frequent service for both passengers and mail. Before the advent of short-wave radio, news was scanty and old—today the magic of radio keeps one in tune with every event throughout the world. Further, by means of radio-telephone it is now possible to phone "home" as easily (if more expensively) as if you were just next door. The old feeling of great distance and isolation known so well to the early pioneers has ceased to exist.

In this setting some 200 Americans, Canadians and sundry other nationalities have their homes and work, spending two years at a time before vacationing back to where they came from. For those who have been there since the beginning in the early 20's the development they helped to build has become almost awesome in its extent and some still look back with longing to the far-away days when roads were being blasted out of the jungle and one's home was frequently little more than a bed in a mosquito-net tent. Today with electricity everywhere, modern homes, shops and stores, ice and potable water to drink, cars to drive and endless roads to drive on, it has ceased to be the "great adventure" for them and has become just another industrial center placed in a tropical scene, more pleasant than most.

Even so, a married woman going to the oil camp at El Centro or the refinery center at Barranca for the first time, will find herself placed in an environment so strange and new that utter bewilderment will usually be her first sensation. In point of fact it is indeed a different world from the customary routine of the average American or Canadian town. Fortunately, people are friendly and helpful and it takes but a little time before initial fears are banished and habit has taken the edge off the strangeness.

A comfortable small brick or frame bungalow is furnished by the Company to all married employes, well equipped with all essentials and modern conveniences, including even an electric refrigerator. Basic furniture is provided and there only remains the hanging of curtains and one's own personal appointments before you are well settled. Each home has a living room, dining room, kitchen, and one or more bedrooms and a large porch—all well ventilated and screened. Probably the greatest surprise around the house is the lack of glass in the windows. In such an extreme climate only screens and shutters to keep out the rain are required.

Due again to the climate, work hours for the men are quite different from the north, and woman's day necessarily conforms thereto. A large siren on the central power plant rudely awakens the camp at

MRS. RAYMOND is the wife of an employe of the Tropical Oil Company at El Centro, Colombia. Her obesrvations of oil field camp life in this tropical jungle again emphasize the effort and expense that oil companies have put forth in their desire to provide the best of facilities for those engaged in foreign operations. Originally, it was proposed that the El Centro camp be described and illustrated in the article entitled, "Foreign Oil Field Life" which appeared in the International Issue of THE OIL WEEKLY, May 12, 1941, to which it now becomes an interesting addendum.

Types of houses provided for employes at El Centro.

5 a.m. each day with the implied warning that work will start an hour hence. As the sun does not rise until about 6 o'clock, and then most abruptly, it usually seems like the middle of the night. For the man of the house it means a definite arising, but most women are fortunate enough to be able to remain in bed until a more reasonable hour (maids being both plentiful and reasonable in cost). Sleep is somewhat fitful because of the 5:45 warning whistle and the final two short blasts at 6 o'clock when work starts throughout the field.

Mornings usually are spent with a trip to the commissary for provisions, or perhaps a round of golf on the tricky nine-hole course before the sun grows too hot, or even a canter for those who like horses. Frequently too a session of bridge is indulged in, although Red Cross work has largely supplanted such morning activities since the outbreak of war.

At 10:30 the men come home for lunch, a shower and quick siesta until the whistle calls them back again at noon. For the women, the afternoon is either a continuation of the siesta or occasionally a tea at the Club until the 3:30 whistle signifies that work is over for the day and the men dash for the golf course and a round before the sun goes down about 6 p.m.

After dinner most entertaining is done, either at home or at the Club. Or perhaps a long drive is taken on the many miles of roads in the cool of the evening. In any event bed follows at a comparatively early hour to prepare for the whistle next morning.

The Company has built and equipped a large and beautiful club house with library, bowling alleys, tennis courts (floodlit for night playing), bar, billiard room, card room and large stage. This is the center of many evening activities with one or more motion pictures being shown each week. Here too, dances are held from time to time with music provided by an orchestra made up of members of the staff. A ladies auxiliary of the club conducts many charitable activities from here and promotes entertainment for the children, such as Christmas plays and the operation of a Sunday School.

For those women with children a well conducted day school is provided with teachers from the north. Here the youngsters are taught from standard works and well-fitted to carry on their studies without handicap on their eventual return to their homes.

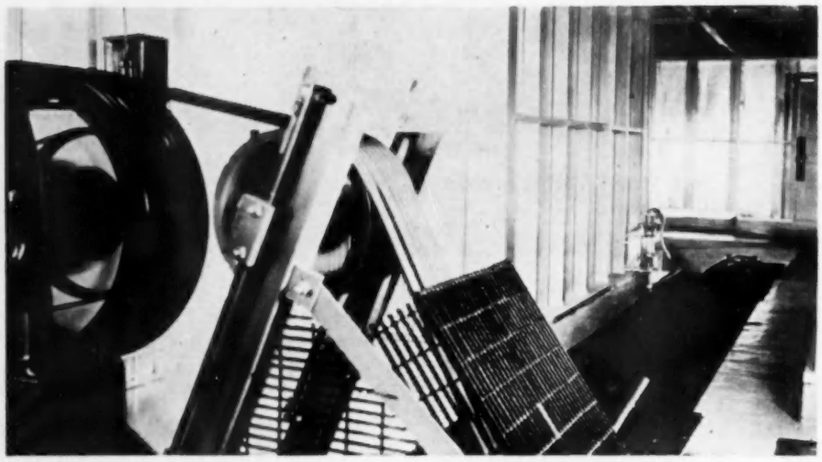
In spite of the severe climate, health conditions are very good and every precaution is taken by the Company doctors to keep them so. A modern and completely appointed hospital is maintained by the Company and available to all in case of need.

It is a common claim of the bachelors in the camp that El Centro is a woman's paradise as there are at least two men to every woman. While most women would not go quite so far, it has to be admitted that life here can be very pleasant and happy. For all it provides a golden opportunity to save for the future, to broaden one's outlook and, above all, to be thankful for the easy ways of this pleasant, tropical country in a world as troubled as this.

Practical Operating Hints for

1. MAINTENANCE

Directed Drainage and Sump Allow Small Pump to Dry Eccentric Pit



Narrow sump from eccentric location drains seepage to this hand pump, which clears pit as accumulation requires

SEEPAGE through the concrete walls of the pit in which the pumping power eccentrics are located results in excessive wear on the eccentric, tends to wash away the lubricant, and imposes operating difficulties which are not considered in the original design.

Dewatering of the eccentric pit may be accomplished by hand bailing, if a sump be provided at a convenient spot while erecting the unit, or a small pitcher pump, such as is used with shallow water wells, may be installed in one corner of the pit and the discharge piped or carried by trough outside the pump house.

The pitcher pump usually requires but a few strokes to free the sump of accumulated water, and requires no attention so long as the foot valve is tight, a little priming being the only requirement if the head within the pump drops during periods of non-use.

The pump may be set so its spout extends over the usual chain wall, or it may discharge into a short drain through the building siding, as there is no demand for handling large volumes of fluid, or for the removal of quantities sufficient to affect the condition of the ground outside the building.

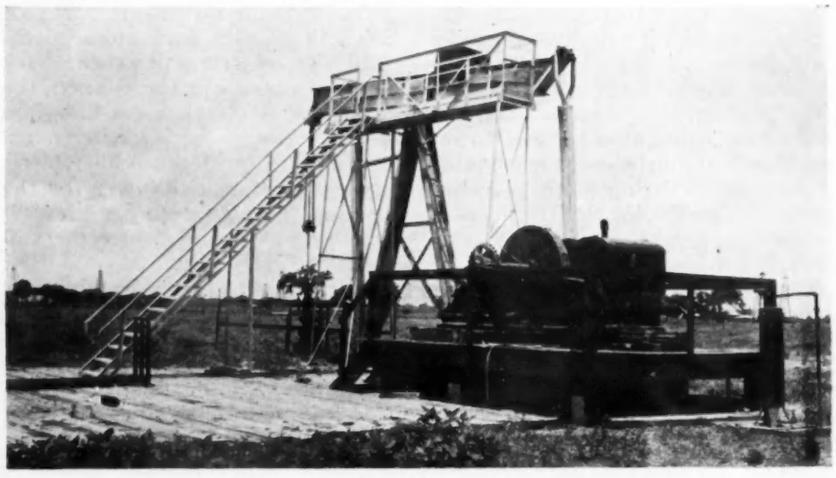
2. SAFETY

Railed Walkway Aids Servicing

ONE operator, using an unusually high pumping unit to operate a well in Coastal Louisiana, erected a platform for servicing the unit, reached from the ground by means of a steel stairway. The stairs are made principally of steel angles which are similar to the structure of steel derricks, and steps constructed of flat steel with roughened or perforated surfaces are provided for safety. The stairway is braced by vertical uprights made of steel angles placed halfway up the stairs to give strength and rigidity, and handrails are erected on both sides of the steps.

The platform is also constructed of safety flooring to furnish firm foothold, and is approximately 8 feet long to allow men to reach any part of the walking beam without climbing on the pumping equipment. Men on the platform are protected by guard rails also made of angles which are in turn reinforced by cross pieces of flat steel for strength. The platform is set atop supporting uprights of steel angles equipped with cross bracing, and additional support is given by additional steel braces connected directly to the Sampson post.

The platform provides safety and convenience for men working on the pumping unit, simplifying changing the counterbalances, lubricating bearings, or adjusting the horse's head after rod jobs. During these operations, handling of tools is facilitated by furnishing a substantial and safe working space and place to lay tools when not in use, and the structure has ample strength to support weight of several men and heavy apparatus and to withstand vibration.



Elevated platform and railed-in ladder enable switcher to service rig and complete lubrication during operations

THE PRODUCTION MAN . . .

3. EMULSIONS

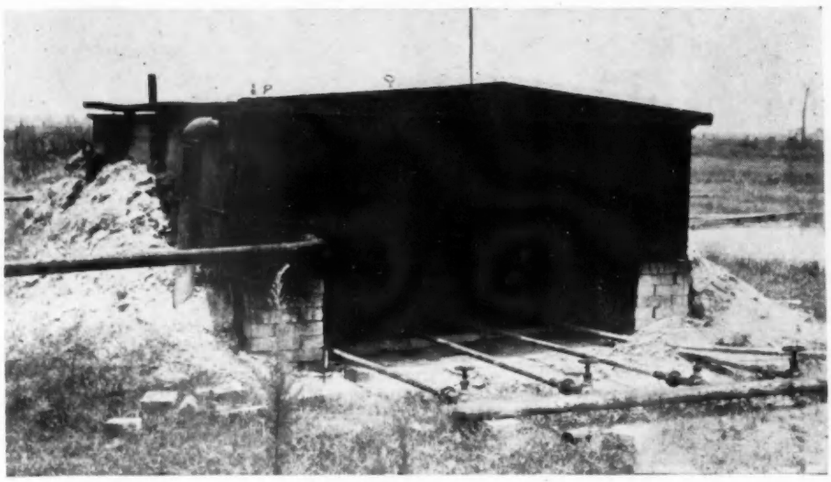
Vat-Type Heater for Field Gas

ONE Gulf Coast operator utilizes the large volume of natural gas which he has available to heat the fluid from his wells before directing it to the gun barrel and separator, to simplify separation of water and basic sediment from the production. An oven is constructed using firebrick and earthen materials, and on top of the brick walls is set a large steel container with dimensions approximately 8 x 10 feet, and 2½ feet deep, riveted and welded throughout to make it water tight. A steel roof covers the container but is not bolted or fastened tightly, nor is it air tight. Earth piled around the outside of the container forces all draft to enter space provided at the front.

The oven is fed by a 2-inch line coming from wells nearby. From this line, four 1-inch pipes branch to direct gas inside the oven, separated to provide wide and even distribution of heat when burning. Valves on each small line are placed to permit efficient heat regulation by cutting off one or more burners as desired.

Emulsified fluid from the well enters the steel container through the 2-inch flow line, and is confined in coiled pipe which conveys it in a circuitous route as it passes through the heated container before leaving at the opposite end through a 2-inch line which directs fluid to the separator. A stream of water enters the container by means of a 4-inch pipe, and the receptacle is always kept filled with water. Flames in the heater underneath heat the water almost to the boiling point, and the fluid from the well, passing through the coils, is also heated, allowing easy treatment at the gun barrel for reducing the emulsion.

By establishing fluid flow through the coils from the top downward, counter currents are set up which afford the highest heat at the point the emulsion leaves the treater, and at which point it is best adapted for separating into oil and water as soon as it is brought to a condition of comparative rest in the gun barrel or settling section of the tank battery.



Coiled flow lines within this tank carry emulsions through hot water bath and aid in separation in gun barrel or tank

THE practical operating hints for the drilling rig and production man, appearing in these features each week, are secured from oil fields everywhere and offer suggestions that will help to improve field efficiency and safety. The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, THE OIL WEEKLY, Houston."

4. FLOW LINES

Sweep Tee Cuts Fitting Erosion

TURBULENCE in flow lines in high-pressure fields may be reduced by constructing scarfed joints which replace ordinary ells to avoid right angle turns at juncture with main flow lines. The joints are made by cutting a slot in the flow line, while the end of the sweep ell tying in is cut smoothly to fit into the groove. An extra-heavy bead is made where the two pipes are welded together to strengthen the structure, and further bracing is placed at the point of greatest weakness by welding a steel plate behind the joint to hold the main pipe and the back of the sweep ell rigidly together.

Directed flow before impact with through line reduces cutting

Flow into the main line from the sweep ell is accomplished without the turbulence that is usually characteristic of 90-degree joints where high pressures are involved, reducing wearing of the connections and the agitation which often causes emulsification of fluids and resultant expense of heat treating.

Let this pair Reduce your pump upkeep costs

New Mission Compound-308 Valve Inserts

These inserts last 3 to 5 times longer than regular inserts in ordinary mud and up to 10 times longer than oil-resisting inserts formerly used in hot mud, treated mud or oil and gas. This exceptionally long life greatly reduces insert replacement costs.

Mission Replaceable Valve Seat Bushings

These inexpensive bushings take the wear instead of the more expensive valve seat. Bushings are easily replaced and cost only a fraction of the cost of the entire seat. This means lower valve seat replacement costs in your pumps.

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If a competitive test in your pumps does not prove that Mission Slush Pump Valves are far more economical to use than the valves you are now using, the entire purchase price of these valves will be promptly refunded.

Test these valves in your Pumps.

We know that when you make a cost comparison, you too will become a confirmed Mission user.

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Your pumps stay running longer and cost less to repair when equipped with Mission Pump Parts

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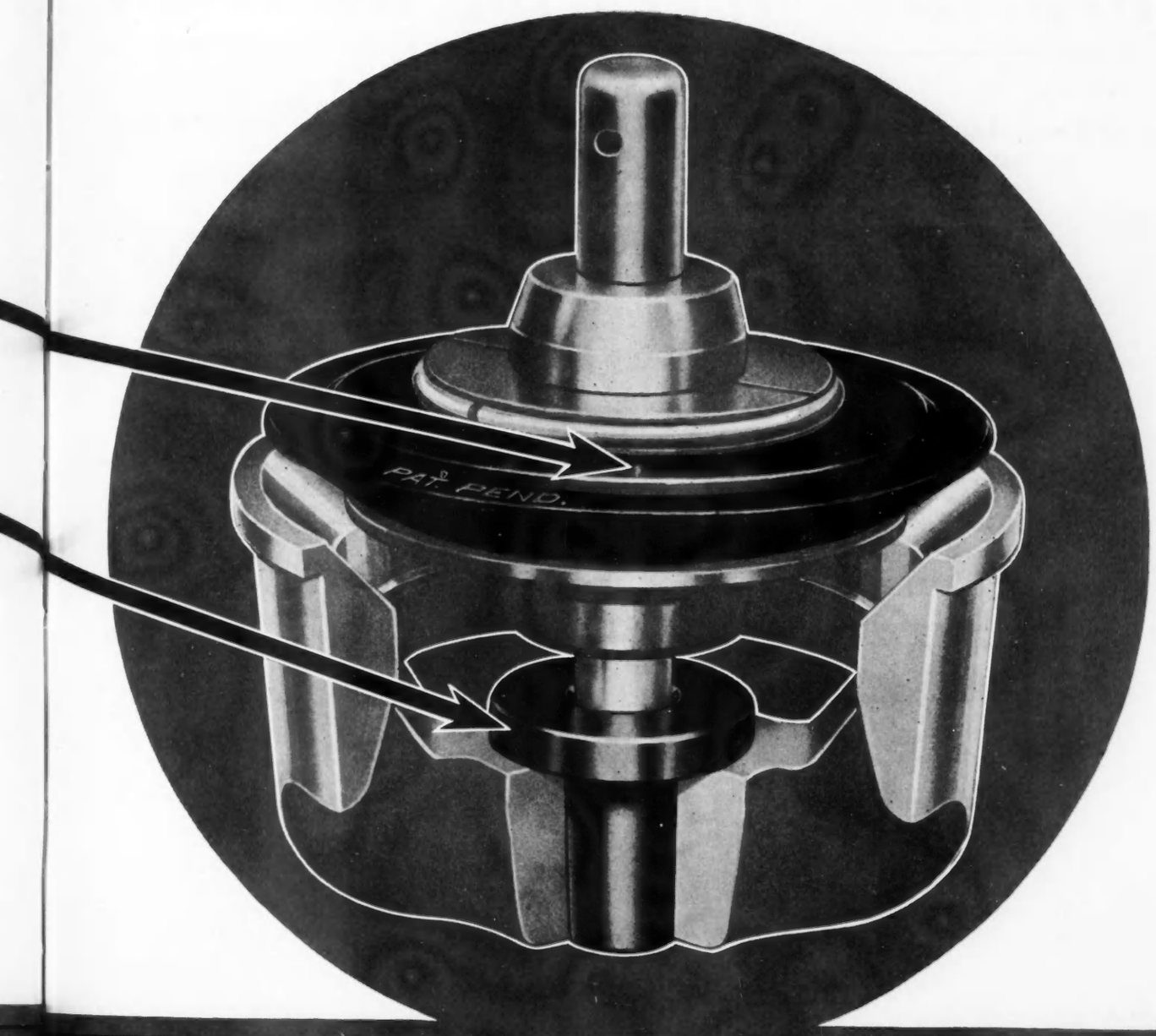
Check up! Your valve maintenance costs will go down like this when you switch to Mission Slush Pump Valves.



SAVE MONEY!

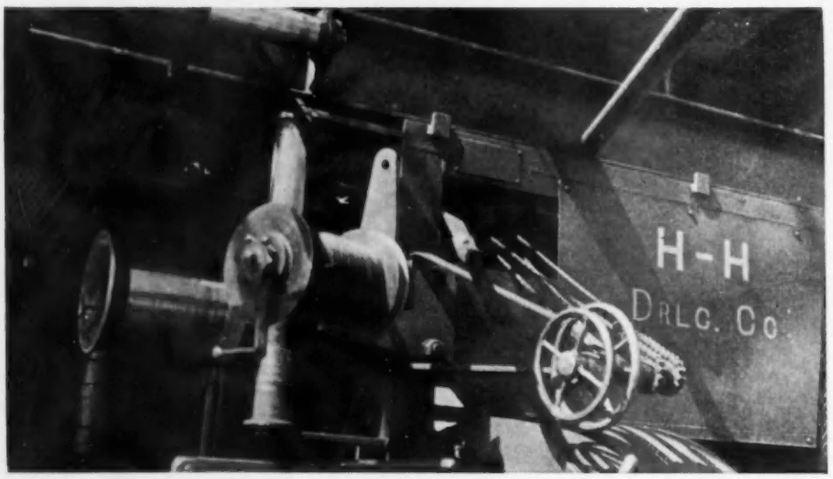
CHANGE BUSHINGS WHEN YOU CHANGE COMPOUND-308 INSERTS

When it becomes necessary to renew Compound-308 Inserts, it is advisable to change bushings at the same time . . . because Compound-308 Inserts give such remarkable service that they last as long as steel bushings.

Practical Operating Hints for

1. MEASURING

Convenient Mounting of Wire Reel on Frame Adjacent to Driller's Stand



Adapter bracket on measuring reel bolts to frame of drawworks and permits short drive from cat head with endless ropes

A SUPPORT for the measuring line reel may be made of a slab of steel, punched at one end to slip over studs on the draw works in front of the cathead. A hole at the other end of the support may be provided for the shaft of the reel, to be inserted and secured with a wing nut. The reel is used with a short piece of endless rope run over the cathead and over the sheave of the measuring-line reel.

2. LUBRICATION

Elevated Container Avoids Contamination

A BOX to keep the lubricant or dope bucket for tool-joint threads is made and placed on an elevated stand for convenience and to prevent contamination of the lubricant by blowing or spattering drilling mud. The container is made of a short piece of conductor pipe with circular plate welded across the lower end for bottom, and handles welded to opposite sides to facilitate transportation. The box is placed atop a stand made of steel angles, with a base about three feet square and angular uprights welded to the container to hold it two feet above the floor.

The container top is hinged to allow easy opening to reach the dope bucket inside. Near the base, a flat plate serves as foot pedal and

Gravity closed cover and foot pedal maintain joint dope in condition

is connected directly to container top by means of steel strips properly placed and hinged, with result that pressure on the pedal opens the top in a manner similar to the action of a household garbage can.

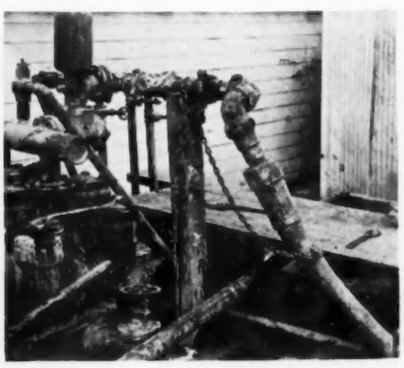
The apparatus is set back from the rotary when not in use, but when running pipe into hole, it is easily moved into position. Pressure on the pedal opens the top to allow extraction of lubricant for the threads, and weight of the top causes it to close automatically when pressure is released. Thus, the container is closed virtually all the time, and when drilling fluid from a wet string of pipe is splashed on the floor, the lubricant is protected, furnishing more satisfactory lubrication for the threads, adding to their service lives and at the same time conserving the lubricant.

3. MUD HANDLING

Circuitous Tie-In With Rotary Hose

IN THE town-lot drilling area of one of the more active California fields, one drilling contractor superintendent overcame a serious problem involving location of mud pumps and the mud lines leading to the well. Situated on the edge of a public alleyway which had to be kept open at all times, and between a house and several garages, the location of the derrick floor, pipe rack and mud ditch left only a small amount of room for the gasoline-engine-powered mud pumps at a short—but tortuous—distance from the well.

Instead of attempting to lay a mud pipe line with many bends and elbows, a used rotary hose was obtained. Connected by means of a swing joint to the pumps, the hose was laid along the ground, winding it about the sills and supports beneath the pipe rack up to the point of connection with the



Section of hose connects manifold with base of standpipe set-up

mud stand-pipe at the derrick. At several points the hose was lashed to solid supports to dampen heavy pump pulsations.

Satisfactory service was obtained in this manner, and with a much lower setting-up cost than had been anticipated.

4. TAPE CARE

Covered Holder Protects Line

Box mounted on post at floor edge keeps device clean and handy

BY FASTENING a box, having a drop lid pivoted at the top, to the standard used to carry the snatch block for the kelly cat line, one drilling contractor provides convenient and readily observable holders for the tape lines used for determining drill-pipe lengths.

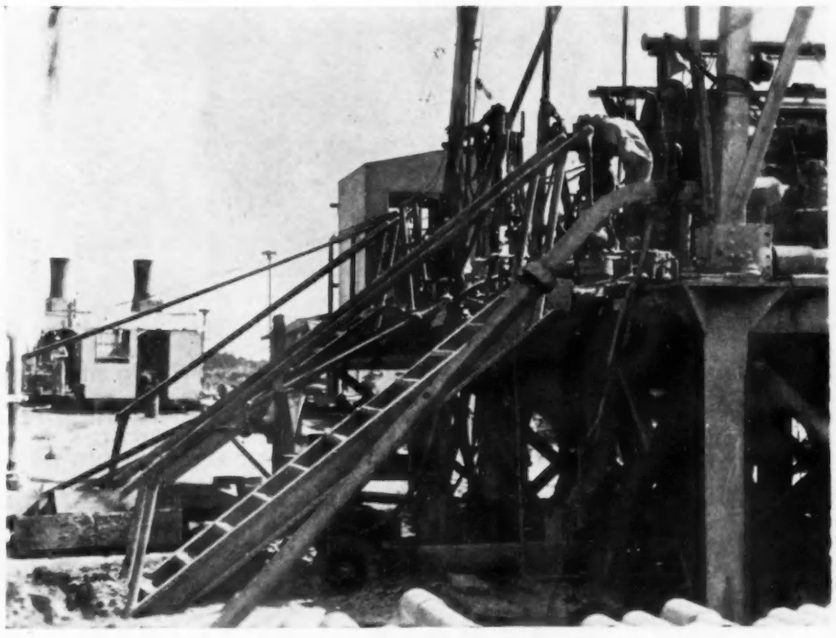
The long tape, a thong on the handle to prevent accidental loss while in use, is kept in the covered box, a recess in the base of the box preventing the tape from falling out when the lid is lifted. The lid or cover provides complete protection for the tape against spattering by mud or being rusted by rain when not in use.

Allowing the end of handle to extend beyond the cover permits the crew to determine at a glance whether or not the tape is in its proper place.

5. RIGGING UP

Long Sweep Bends Reduce Friction

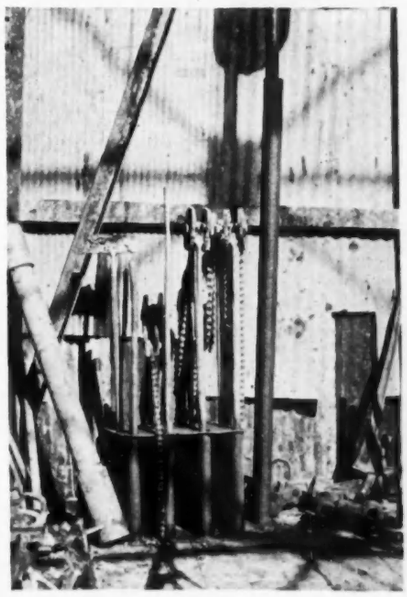
ELIMINATION of sharp turns in the rotary-mud line from the slush pumps to the swivel reduces pump effort and increases the life of line and valves. This has been evidenced in the hook-up of Quintana Petroleum Corporation in the Washburn field, LaSalle County, Texas. Connected to the pumps by a union, the flow line makes a wide swing, then rises at about a 45-degree angle to another union connection at the derrick. The mud gauge and connection for fill-up line are connected at this point. A series of swedge nipples and plug valves handle the increased wear at this point. The use of unions in the line facilitates rigging up and tearing down. By disconnecting union in the line at the base of the derrick, the mud line and connections in the derrick remain completely rigged up while moving or skidding to a new location.



Long, formed bend and inclined tie-in from mud manifold to base of standpipe reduces wear at directional changes

6. TOOL RACK

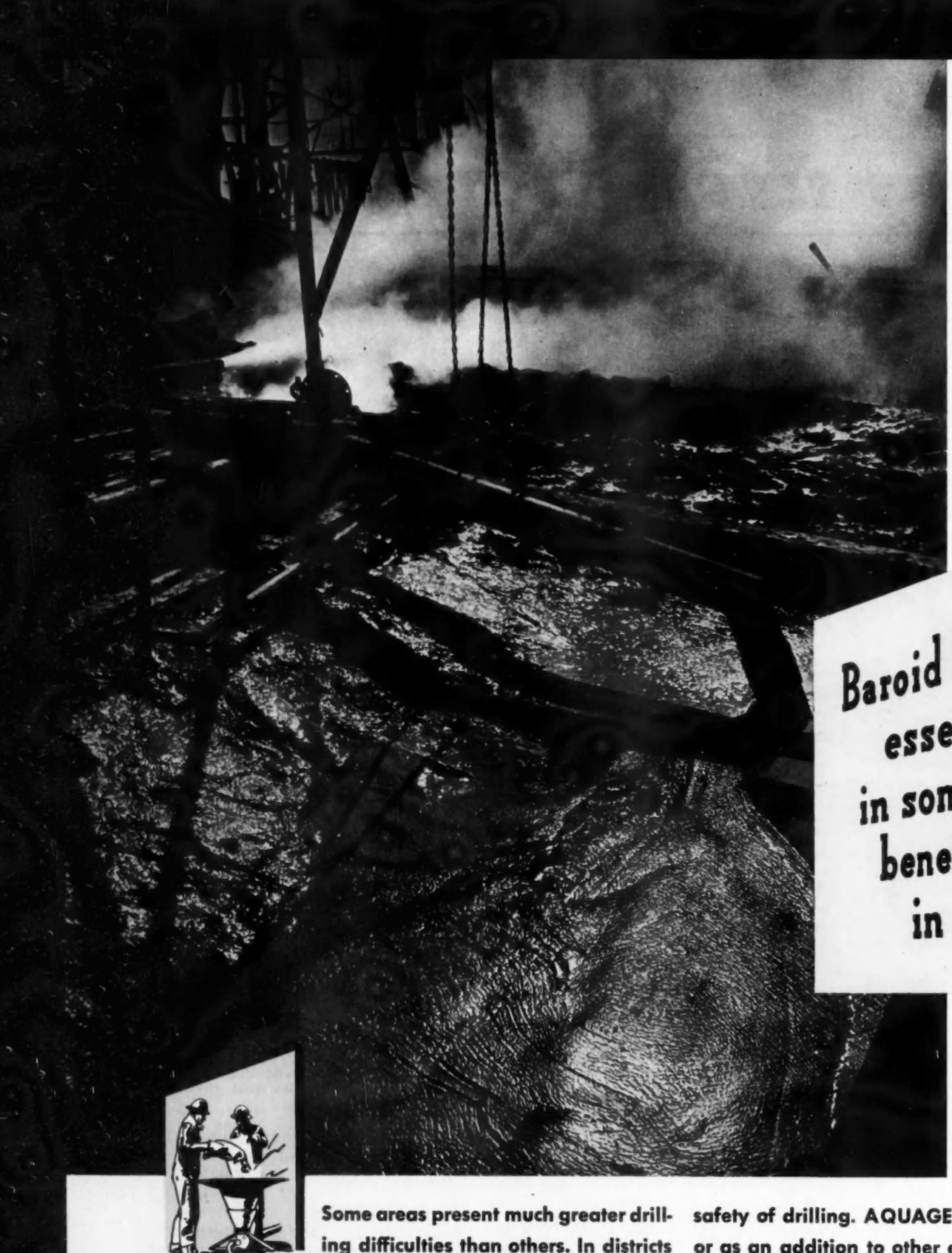
Separate Sections Prevent Damage



Short pipe sections and light plate form device for quick tool choice

A SMALL-tool rack is practical and essential around any drilling rig, regardless of the depth at which it is intended to work. A neat rack which automatically segregates the tools and permits ready selection of any one, is made up of a number of short sections of 2-inch pipe, welded to a base of tank plate and tack welded together to form a stable unit.

The open ends of the pipe serve to receive the handles of such tools as wrenches, tongs, hammers, and other equipment with normal sized grips, and by keeping the working ends out in the open, aid in quick selection of the proper tool without loss of time.



Baroid Products- essential in some muds, beneficial in all

Some areas present much greater drilling difficulties than others. In districts where abnormal gas, oil or water pressures tend to cause blowouts, or where caving occurs, weighted muds are essential. BAROID or COLOX can be made up to maximum weights with suitable viscosities and low water losses.

Even in areas where serious drilling difficulties are not encountered, the use of Baroid Products cuts down drilling time and adds to the ease and safety of drilling. AQUAGEL, used either straight or as an addition to other drilling muds, reduces the water loss and cake thickness, thus preventing difficulties that might otherwise occur.

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BAROID PRODUCTS: BAROID AND COLOX, AQUAGEL, FIBROTEX, BAROCO, STABILITE, AQUAGEL-CEMENT, SMENTOX, ZEOGEL, IMPERMEX, MICATEX, TESTING EQUIPMENT, BAROID WELL LOGGING SERVICE

HIGHLIGHTS IN THE WEEK'S NEWS

Allowables

Bureau Estimate Tops All Former Figures for October

Topping the 4,000,000-barrel mark for the first time in the history of the domestic industry, the required demand for oil in October will be 4,012,900 barrels a day, it is forecast by the Bureau of Mines.

The anticipated demand will be 52,900 barrels above the estimate for September and 11 percent above actual demand in October, 1940, it was said.

Holding that, under present conditions, stocks of all oils are not excessive, the bureau foresaw the need for greater-than-normal additions to gasoline stocks this winter as a safeguard against the overloading of refinery capacity next year.

Daily average crude production for the four weeks August 9 to September 12 was 3,937,000 barrels and total runs to stills 3,990,000 barrels, while domestic stocks declined on an average of 134,000 barrels a day, indicating a demand for domestic crude of 4,071,000 barrels, it was pointed out.

"In the bureau's forecast for October," it was explained, "consideration has been given to continuation of reduced exports from the Pacific Coast, to a possible increase in new means of transport to the East Coast, and to increasing naval requirements for fuel oil.

"The increase of 16 percent in total motor-fuel demand in July, 1941, as compared to last year, was abnormal, due to both the unusually low figure for July, 1940, following inflated sales in June, 1940, and to unusually large sales this year in anticipation of a possible shortage in the East Coast district.

"The bureau's forecast for the fourth quarter of 1941 indicates runs to stills at a probable level of 3,950,000 barrels daily and a demand for domestic crude petroleum of about 4,000,000 barrels daily.

"Under present conditions, stocks of all oils are not excessive. Some increase in crude stocks seems to be desirable after the heavy liquidation in recent months. The seasonal increase in gasoline stocks during the coming winter months might well be greater than normal as increasing demand may otherwise tax refinery capacity during the summer of 1942."

The bureau reported that, on a revised basis, total stocks of all oils in the East Coast district amounted to 70,300,000 barrels on July 31, or about 6,500,000 barrels less than the comparable figure for last year. The estimated increase during August was about 1,800,000 barrels, compared to an increase of 3,100,000 barrels in the same month in 1940.

Domestic demand for motor fuel in October is estimated at 59,700,000 barrels, an increase of 11 percent over the October, 1940, actual demand. Exports, on the basis of forecasts by the principal shippers, are placed at 2,000,000 barrels, exclusive of re-exports of motor fuel imported in bond.

Stocks of finished and unfinished gasoline amounted to 84,701,000 barrels on July 31, and API statistics indicate a decline of about 5,100,000 barrels during August, which would leave approximately 79,600,000 barrels in storage at the close of that month. A further decrease of 700,000 barrels is estimated for October.

Benzol production and direct sales of natural gasoline are figured at 1,700,000 barrels, making an indicated refinery production of 59,300,000 barrels, allocated among the several districts as follows:

East Coast, 7,350,000 barrels; Appalachian, 2,310,000 barrels; Indiana-Illinois, 12,510,000 barrels; Oklahoma, 3,060,000 barrels; Kansas-Missouri, 3,370,000 barrels; Inland Texas, 3,860,000 barrels; Texas Gulf Coast, 14,910,000 barrels; Louisiana Gulf Coast, 1,920,000 barrels; Inland Louisiana - Arkansas, 1,170,000 barrels; Rocky Mountain, 1,600,000 barrels; California, 7,240,000 barrels.

Natural gasoline to be blended at refineries was estimated at 8.1 percent of total refinery production, or 4,820,000 barrels; and the yield of straight-run and cracked gasoline was estimated at 44.4 percent which, applied to the production of 54,480,000 barrels, gives crude runs of 122,700,000 barrels, or 3,958,000 barrels a day.

The estimate for foreign crude runs to stills is 4,500,000 barrels, exports are placed at 4,200,000 barrels (compared with 5,269,000 barrels actually exported in October, 1940), and crude to be used as fuel and losses is 2,000,000 barrels, giving an estimated demand for domestic crude of 124,400,000 barrels for the month, or 4,012,900 barrels daily, allocated to the several producing states as detailed in an accompanying table.

Allowables for October Are Closer to Demand

Crude production allowables for October, as fixed by the prorated states, are generally conservative and closely in line with indicated market demand for domestic crude, as estimated by the Bureau of Mines.

The schedules indicate considerably less strict curtailment, in relation to demand, than in September; but during September, there was a substantial draft on stocks of domestic crude, in meeting refinery requirements. (In the first half of the month, beyond which period statistics are not yet available, the

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Bureau of Mines Estimate Daily Average Crude-Oil Demand by States
(Barrels)

(As no changes in crude-oil stocks are involved in these estimates, they represent demand rather than production.)

STATE	Forecast October, 1941	Forecast September, 1941	Actual October, 1940
Texas	1,420,100	1,378,600	1,301,400
California	613,200	634,700	618,900
Oklahoma	481,500	489,800	456,800
Illinois	399,200	392,500	353,200
Louisiana	332,000	324,000	284,200
Kansas	253,000	239,800	182,700
New Mexico	114,600	113,200	84,900
Wyoming	84,300	85,000	74,600
Arkansas	78,200	79,000	63,300
Pennsylvania	46,300	48,400	45,200
Michigan	44,100	39,500	47,600
Mississippi	43,900	33,000	11,200
Montana	20,300	20,200	15,700
Indiana	20,100	21,400	20,100
New York	15,500	15,000	13,500
Kentucky	15,100	14,600	14,500
West Virginia	12,000	12,000	11,100
Ohio	9,200	9,800	8,700
Nebraska	5,300	5,000	1,900
Colorado	5,000	4,500	2,700
Other	.....	.....	300
	4,012,900	3,960,000	3,612,500

United States inventory was reduced approximately 3,000,000 barrels.)

The 8 prorated states, which account for 83 percent of the country's production, have combined October allowables 31,295 barrels daily, or 9/10 of 1 percent, under indicated market demand; whereas for September the allowables were 102,941 barrels (3.1 percent) below demand.

These figures indicate that production will fill demand more completely in October than in September by the amount of about 72,000 barrels daily or 2,000,000 barrels for the month; that there will not be any great amount of underproduction, to be made up by withdrawals of crude from storage, as in September.

However, California actually overproduced market demand about 8000 barrels daily in September, and inasmuch as the demand will be lower in October while production likely will not be greatly changed, it is to be anticipated that that state may show overproduction around 30,000 barrels daily in October. In such event, actual production for the United States as a whole would be even closer to completely fulfilling market demand in the amount of over 20,000 barrels daily or over 600,000 barrels for the month.

Illinois produced about 8000 barrels a day more in September than estimated market demand, and with production holding up above 400,000 barrels daily, that state may show a similar excess for October, despite the raising of the demand estimate to 399,200 barrels daily for the month from 392,500 for September.

Texas Allowable Set Slightly Above Bureau

The October proration order issued by the Texas Railroad Commission last week provides an estimated net daily allowable of 1,485,966 barrels during that month.

With an anticipated 3.5 percent underproduction, the net allowable should average 13,000 barrels over the Bureau of Mines estimate.

For the first time in many months, the entire state, with the usual list of exempt fields, was subjected to the same number of shutdown days. The shutdown days under the new order are October 4, 5, 11, 12, 18, 19, 25, 26 and 31.

The only material change in the state picture was a boost of approximately 2224 barrels in the average net daily allowable for the Panhandle, brought about by the new allocation formula which becomes effective October 1.

Although no out-right increase was given to the low-cold-test fields, as urged at the last hearing, some increases went to those field, as well as other fields throughout the state by reason of the nine shutdown days in a 31-day month, as against 10 shutdown days in September, which was a 30-day month.

The only changes of more than 200 barrels under the new order are listed as follows: Gulf Coast District: Lovells Lake, up 343 barrels from 5370 to 5713; Markham, up 216 barrels from 990 to 1206; Southwest Texas: Rincon, increased 373 barrels from 4163 to 4536; East Central Texas: Hawkins, up 338 barrels from 7609 to 7947; Talco, reduced 286 barrels from 27,730 to 27,444; West Texas: Kermit, cut 277 barrels from 12,219 to 11,942; North Texas: Knox, cut 290 barrels from 797 to 507.

Louisiana Increased

Louisiana's oil allowable for October was set by the Louisiana Conservation Commission at 339,233 barrels, an increase of 10,587 barrels over September. North Louisiana was given 71,064 barrels, the rest going to South Louisiana.

Arkansas Unchanged

Arkansas Oil and Gas Commission left the October allowable at the September figure except in three fields. Atlanta was cut to 2604 from 2835 barrels; Dorcheat was cut from 2160 to 1540 barrels and a new volumetric withdrawal for Dorcheat was set with a top per well allowable of 140 barrels daily and a top gas-oil ratio of 8000 to 1. Magnolia was cut 1000 to 19,000 barrels.

October Allowables Indicate That Crude Production Again May Fall Somewhat Short of Consumption

(Barrels Daily)

STATE	Bureau of Mines Estimate of Demand for September	Bureau of Mines Estimate of Demand for October	State Allowable Beginning of October	Difference of October Allowable From Demand	Percent Difference of October Allowable From Demand
Arkansas	79,000	78,200	73,415	— 4,785	— 6.1
California	634,700	613,200	*613,200	.....	.....
Kansas	239,800	253,000	†253,000	.....	.....
Louisiana	324,000	332,000	339,233	+ 7,233	+ 2.1
Michigan	39,500	44,100	‡50,000	+ 5,900	+13.3
New Mexico	113,200	114,600	114,600	.....	.....
Oklahoma	489,800	481,500	§428,000	—53,500	—11.1
Texas	1,378,600	1,420,100	*1,433,957	+13,857	+ 0.9
Total 8 Prorated States	3,298,600	3,336,700	3,305,405	—31,295	— 0.9
Illinois	392,500	399,200	‖400,950	+ 1,750	+ 0.4
Other States	268,900	277,000	.....	.....	.....
Total United States	3,960,000	4,012,900	.....	.....	.....

* Recommendation of Conservation Committee of California Oil Producers.
† Kansas expected to set allowable same as Bureau of Mines estimate of demand.
‡ Estimate of actual production that will occur under prescribed regulations.
§ Unchanged from September.
* Calculated daily average of actual production at beginning of month, allowing for usual under production of 3½ percent below net allowable, which was figured at 1,485,966 barrels daily. However, allowable normally increases as new wells are completed, and actual daily average production for month is expected to conform with Bureau of Mines estimate of demand. Under October order, most Texas fields were ordered shut down October 4, 5, 11, 12, 18, 19, 25, 26 and 31. Panhandle was ordered shut down October 5, 12, 19, and 26.
‖ Average level at which unprorated Illinois produced during 4 weeks ended September 20.

Pipe Lines

Shell Buys Basin Line; To Extend West Texas Service

Shell Pipe Line Corporation has expanded its facilities to serve the West Texas-New Mexico area by purchasing from the Basin Pipe Line Company an extensive gathering system in the Wasson field, Yoakum and Gaines Counties, and a trunk line running 93 miles southeast to Big Spring, Texas. Announcement was made by T. E. Swigart, president.

Coincident with taking over operation of these facilities on October 1, 1941, Shell will extend the trunk line 5 miles north in Wasson and 20 miles east from Big Spring to the Westbrook station on its main line to Cushing, Oklahoma, and Wood River, Illinois. The new line passes between the Seminole and Cedar Lake fields.

Addition of wells connected to the Basin system will bring Shell Pipe Line Corporation's total connections in Wasson to about 550 wells. The company has been serving the Wasson field since September, 1939, through its line running south via Hobbs, New Mexico, to McCamey, Texas, which now is operating at full capacity. Addition of the Basin line will give the company ample capacity to serve all of these wells and also will enable it to handle more crude from New Mexico and West Permian Basin fields. Shell will deliver about 2500 barrels daily of Wasson crude via the Basin line to Cosden Petroleum Corporation's refinery at Big Spring.

Acquisition of the new line was effected through cooperation of Mid-Continent Supply Company and Brown & Root, Inc., who acquired all of the stock of Basin Pipe Line Company from its various stockholders and are arranging liquidation of the corporation.

Shell Completes Products Line in New England

Shell Oil Company has completed a 65-mile pipe line designed to serve central and western Massachusetts, as well as southern parts of Vermont and New Hampshire.

The new 6⅝-inch line, which will transport finished petroleum, links the company's 45,000,000-gallon storage capacity at Fall River ocean terminal with a new bulk plant in West Boylston, on the outskirts of Worcester.

The line is capable of supplying nearly 400,000 gallons per day.

Continental Moving Pipe to Get North Texas Oil

Continental Pipe Line Company will salvage about 24 miles 4-inch pipe from the east end of its idle carrier that was built more than a decade ago from Wichita Falls to Nocona shallow district, Montague County, to connect the Rose-Jolly, Halsell and other nearby high-gravity oil pools in western Clay County with Continental Oil Company's Wichita Falls refinery. Except the Halsell pool, these areas are dependent upon tank truck for outlet.

Associations

A.I.M.E. Petroleum Meeting At Los Angeles October 29-30

Program has been announced for the fall meeting of the petroleum division, American Institute of Mining and Metallurgical Engineers, in Los Angeles, October 29-30. Sessions will be held morning and afternoon on both days at the Ambassador Hotel. The meeting will end with a banquet on the evening of October 30. John R. Suman, vice president of Humble Oil & Refining Company, Houston, and president of A.I.M.E., will make the banquet address.

Program for technical sessions follows:

Wednesday, October 29—9:30 a. m.

W. H. Geis, chairman; L. W. Huebel, vice chairman.

Geologic Setting for the Occurrence of Oil in California, H. W. Hoots, chief geologist, Richfield Oil Corporation.

Completion and Recompletion Practices Related to Well Productivity, W. J. Travers, Jr., division superintendent, Richfield Oil Corporation.

A Program of Utilization of Natural Gas—California, Ray L. Riley, California State Railroad Commission.

How the Small Operator Can Use Good Engineering Practice, Ernest N. Merrill, consulting petroleum engineer.

Wednesday, October 29—2:00 p. m.

E. K. Parks, chairman; Carlton Beal, vice chairman.

Productivity of Oil Wells and Inherent Influences of Gas-Oil Ratios and Water Saturation, R. V. Higgins, petroleum engineer, United States Bureau of Mines.

Opportunities in Petroleum Engineering from the Manager's Viewpoint, F. R. Schmieder, division manager, coastal division, Shell Oil Company.

Sound Petroleum Technology, Eugene A. Stephenson, chairman, Petroleum Division, A.I.M.E., and professor of petroleum engineering, University of Kansas.

Field Application of Depth-Pressure and Core-Analysis Methods to the Determination of Mean Effective Sand Permeability, N. van Wingin, production engineer, northern division, Richfield Oil Corporation.

Thursday, October 30—9:30 a. m.

C. P. Watson, chairman; E. G. Trostel, R. W. French, vice chairmen. Sponsored by the Junior Division, Southern California Section.

Factors Influencing the Electrical Resistivity of Drilling Muds, John E. Sherborne, petroleum engineer, and William N. Newton, research engineer, Union Oil Company.

Chemical Nature of Viscosity Reductions in Mud Fluids, Donald A. Limerick, Baroid Sales Company.

Core Saturation, Russell Wade, engineer's assistant, Union Oil Company.

Portable Drilling Rigs, T. A. Atkinson, drilling engineer, General Petroleum Corporation.

Del Valle Field, Dean Sheldon, petroleum engineer with R. E. Havenstrite.

Thursday, October 30—2 p. m.

John F. Dodge, chairman; H. N. Marsh, vice chairman.

Forum Session: "Is Unified Pressure Control Essential to Oil Recovery—the Paloma Plan?"

Geology and Development, James T. Woods, manager, producing department, The Texas Company.

P. V. T. Relations, Norris Johnson, physicist, General Petroleum Corporation.

A Plan for Operation, Wm. H. Geis, assistant to the president, Union Oil Company.

The Management's Viewpoint, Paul Huggins, manager, Western Gulf Oil Company.

The Gas Company's Viewpoint, William Moeller, Jr., vice president, Southern California Gas Company.

The Landowner's Viewpoint, Paul Paine, consulting geologist and engineer. The meeting will be open for general discussion.

Entertainment

Entertainment features include an informal dinner and smoker Wednesday at 7 p.m., in the Fiesta Room of the Ambassador hotel, this dinner being sponsored by the Southern California Section, with Victor H. Wilhelm, chairman of the section, presiding, and John R. Suman the speaker. Wednesday and Thursday morning breakfasts will bring together authors, presiding officers of technical sessions and division officials, and Thursday evening at 8 o'clock an informal dinner dance for members and guests in Cocoanut Grove.

Officers of Cathodic Section, Petroleum Industries Electrical Association, left to right, L. F. Scherer, The Texas Pipe Line Company, Houston; F. J. McElhatton, Panhandle Eastern Pipe Line Company, Kansas City; H. C. Gear, Lone Star Gas Company, Dallas; G. R. Olson, United Gas Pipe Line Company, Shreveport.

Cathodic Protection Reviewed In Papers at Houston Session

Four papers on cathodic protection were given at a two-day meeting of the Cathodic Section of the Petroleum Industries Electrical Association in Houston September 25-26.

Walter F. Rogers, Gulf Pipe Line Company, Houston, led a discussion on "A Laboratory Study of Current Densities and Their Relations to Pipe to Soil Potentials"; G. R. Olson, United Gas Pipe Line Company, Shreveport, presented "Joint Installation of Cathodic Units." Donald H. Bond, The Texas Pipe Line Company, Houston, gave a paper on "Solving a Case of Telephone Noise Caused by a Rectifier Cathodic Unit." O. C. Mudd, Shell Pipe Line Corporation, Houston, discussed "Locating Pipe Line Corrosion With Soil Surface Potential Measurements."

Committees were organized to function on resolutions; problems, research and technology, inter-company procedure; directory of operating companies relative to location, use, maintenance and operation of cathodic protection equipment; abstracts for Electrical News.

H. C. Gear, Lone Star Gas Company, Dallas, was chairman; F. J. McElhatton, Panhandle Eastern Pipe Line Company, Kansas City, was vice chairman; G. R. Olson, United Gas Pipe Line Company, Shreveport, was secretary; and L. F. Scherer, Texas Pipe Line Company, Houston, was counsel.

Photogrammetry Association Plans Session at Tulsa

American Society of Photogrammetry will hold its semi-annual convention in Tulsa, October 6-9, 1941. Fred Q. Casler, president of Aero Exploration Company, Tulsa, general chairman of the convention, is now serving with the 125th Observation Squadron at Ft. Sill, as a lieutenant. Casler anticipates obtaining a leave of absence in order to attend the technical sessions.

Registration will begin the afternoon of October 6 with the first of the papers to be given the following morning. A complete, three-day program is scheduled.

Information can be obtained from Archie Baley, Tulsa Chamber of Commerce or from Aero Exploration Company. In addition to members of the Society, the meeting is expected to be attended by a number of geologists, exploration directors and technicians.

Committees Organized by Coordinator's Office for Comprehensive Surveys in District 2

Several comprehensive surveys and studies of conservation problems relating to well spacing, engineering, unitization, secondary recovery methods and need for steel materials are planned by the District 2 Production Committee, of which O. D. Donnell, The Pure Oil Company, is chairman. A number of subcommittees have been appointed to conduct the surveys and studies. From information gathered it is hoped the District Production Committee, one of the groups appointed by Harold L. Ickes to act in an advisory capacity to the Office of Petroleum Coordinator, will be able to plan a better long-range and wider perspective program on the needs and problems of the industry in the 15-state area constituting District 2.

Equipment Sub-Committee

To minimize the effect of a probable shortage of materials and equipment necessary for operations, a comprehensive survey is being undertaken to determine how much tubular and fabricated equipment will be required by the producing branch during the last four months of 1941 and all of 1942. Additional studies will be made as to the tonnage figures on tubular goods and fabricated equipment required for the maintenance of existing properties, the amount required for the development of present new pools and the quantity needed for exploration and wildcatting.

A temporary subcommittee on Equipment, Materials and Supplies to serve the 15-state area has been appointed as follows:

Frank O. Prior, Stanolind Oil & Gas Company, chairman; W. M. Bovaird, Bovaird Supply Company, J. W. Walker, National Tank Company, Guy E. Thompson, Bethlehem Supply Company, E. E. Robbins, Oil Well Supply Company, J. R. Freeman, The Carter Oil Company, O. E. McClatchey, Barnsdall Oil Company, C. G. McLaren, Shell Oil Company, Bob Bradshaw, Warren & Bradshaw Drilling Company, Lloyd Noble, Noble Drilling Company, W. S. Churchill, Arrow Drilling Company, H. W. Ladd, Stanolind Oil & Gas Company, M. L. Terry, The Texas Company, D. L. Trax, Gulf Oil Corporation, Glenver McConnell, Shell Oil Company, R. M. Carr, Sinclair Prairie Oil Company, M. H. Heine, Phillips Petroleum Corporation, R. B. Kelly, Pure Oil Company, M. A. Sherwood, Shell Oil Company, H. M. Stallcup, Skelly Oil Company, H. E. Zoller, Derby Oil Company, H. K. Beardmore, Beardmore Drilling Company, E. M. Smith, National Supply Company, Alvin H. Weber, Weber Oil Company, and W. J. Hinchey, Kentucky Natural Gas Corporation.

Oklahoma Subcommittee

Personnel of the temporary subcommittees for Oklahoma:

Well Spacing: Rush Greenslade, Gulf Oil Corporation, chairman; R. B. Roark, Shell Oil Company, H. M. Stallcup, Skelly Oil Company, D. H. Kelsey, Sinclair Prairie Oil Company, W. W. Fleming, Ohio Oil Company, George O. Moody, Mid-Continent Petroleum Corporation, C. P. Dimit, Phillips Petroleum Company, Earle S. Porter, Amerada Petroleum Corporation, J. D. McNutt, Pure Oil Company, C. H. Wright, Sunray Oil Company, J. E. Holm, Atlantic Refining Company, J. R. McWilliams, Carter Oil Company, L. W. Campbell, Magnolia Petroleum Company, J. G. Dyer, Continental Oil Company, Will H. Smith, M. L. Terry, The Texas Company, J. Fred Darby, Darby Petroleum Corporation, F. M. Porter, Fain-Porter Drilling Company, R. R. Kirchner, T. T. Eason, Eason Oil Company, F. B. Carden, Home Stake Companies, Miles B. Spears, Margay Oil Corporation, J. D. Campbell, Reford Bond, Corporation Commission of Oklahoma, and E. F. Bullard, Stanolind Oil & Gas Company.

Unitization: N. T. Gilbert, Midstates Oil Corporation, chairman; P. H. Bohart, Gulf Oil Corporation, R. H. Lynn, Kerlyn Oil Company, C. O. Stark, Phillips Petroleum Company, J. S. Anderson, Anderson-Prichard Oil Corporation, E. F. Bullard, Stanolind Oil & Gas Company, C. E. Mackay, Carter Oil Company, J. Scarborough, Mid-Continent Oil Corporation, H. N. Greis, Deep Rock Oil Corporation, H. B. Smith, Sinclair Prairie Oil Company, A. M. Blow, Amerada Petroleum Corporation, E. J. Gorman, Sinclair Prairie Oil Company, H. W. Penterman, Shell Oil Company, Clyde H. Pape, Selby Oil & Gas Company, W. W. Bruce, Continental Oil Company, H. H. Arnold, Jr., The Texas Company, Forrest Lindsay, National Royalty Owners Association, W. A. Goforth, Oklahoma Stripper Well Association, W. A. Delaney, Jr., Elmo Thompson, Superior Oil Company, Ward S. Merrick, F. W. Merrick, Inc., Harold Stephens, Ray Stephens, Inc., D. B. Malernee, J. F. McManmon, and W. J. Armstrong, Corporation Commission of Oklahoma.

Secondary Recovery: D. R. Knowlton, Phillips Petroleum Company, chairman; D. R. Snow, Barnsdall Oil Company, W. K. Whiteford, British-American Oil Producing Company, A. L. Robinson, Forrest Production Company, R. W. Bond, Shell Oil Company, E. H. Moore, E. H. Moore, Inc., J. E. Roth, Tidewater Associated Oil Company, S. G. Sanderson, Gulf Oil Corporation, J. A. Steele, Kewanee Oil Company, Raymond Carr, Sinclair Prairie Oil & Gas Company, M. J. Kirwan, Cities Service Oil Company, J. F. Blackwell, The Texas Company, Roy M. Johnson, W. W. Warner, Warner-Caldwell Company, J. C. Shaffer, Edward C. Lawson, Lawson Petroleum Company, Sam K. Vierson, Colin Rae, Skelly Oil Company, H. J. Whitehill, Harmon-Whitehill Oil Company, and Ray Weems, Corporation Commission of Oklahoma.

Engineering: Russel Knappen, Gulf Oil Corporation, chairman; I. S. Salnikov, Carter Oil Company, Lloyd Noble, Samedan Oil Company, C. W. Tomlinson, George Vandaveer, Mid States Oil Corporation, W. W. Ambrose, Cities Service Oil Company, W. B. Berwald, Ohio Oil Company, George Bays, Stanolind Oil & Gas Company, and J. J. O'Loughlin, Corporation Commission of Oklahoma.

Kansas Subcommittees

Personnel of the temporary subcommittees for Kansas has been appointed as follows:

Well Spacing: Don Bothwell, Darby Petroleum Corporation, chairman; R. S. Knappen, Gulf Oil Corporation, George Bays, Stanolind Oil & Gas Company, John Harwood, E. C. Moncrief, J. G. Deyer, Continental Oil Company, D. A. Howard, Cities Service Oil Company, George Hinkle, Willis Hartman, Ralph Roark, Shell Oil Company, Heber Beardmore, Nathan Appleman, Central Petroleum Corporation, D. R. McKeithan, Phillips Petroleum Company, T. A. Morgan, Director of Conservation, and C. D. Watson, Carter Oil Company.

Unitization: D. R. Lauck, chairman; Ted Gore, W. W. Bruce, Continental Oil Company, C. C. Herndon, Skelly Oil Company, Edwin Carlson, F. G. Stodder, C. S. Sanders, Stanolind Oil & Gas Company, D. H. Kelsey, Sinclair Prairie Oil Company, Howard Gillespie, Leon Derby, W. H. Morrison, Shell Oil Company, F. E. Lockhart, A. W. Ambrose, Cities Service Oil Company, and T. A. Morgan, Director of Conservation.

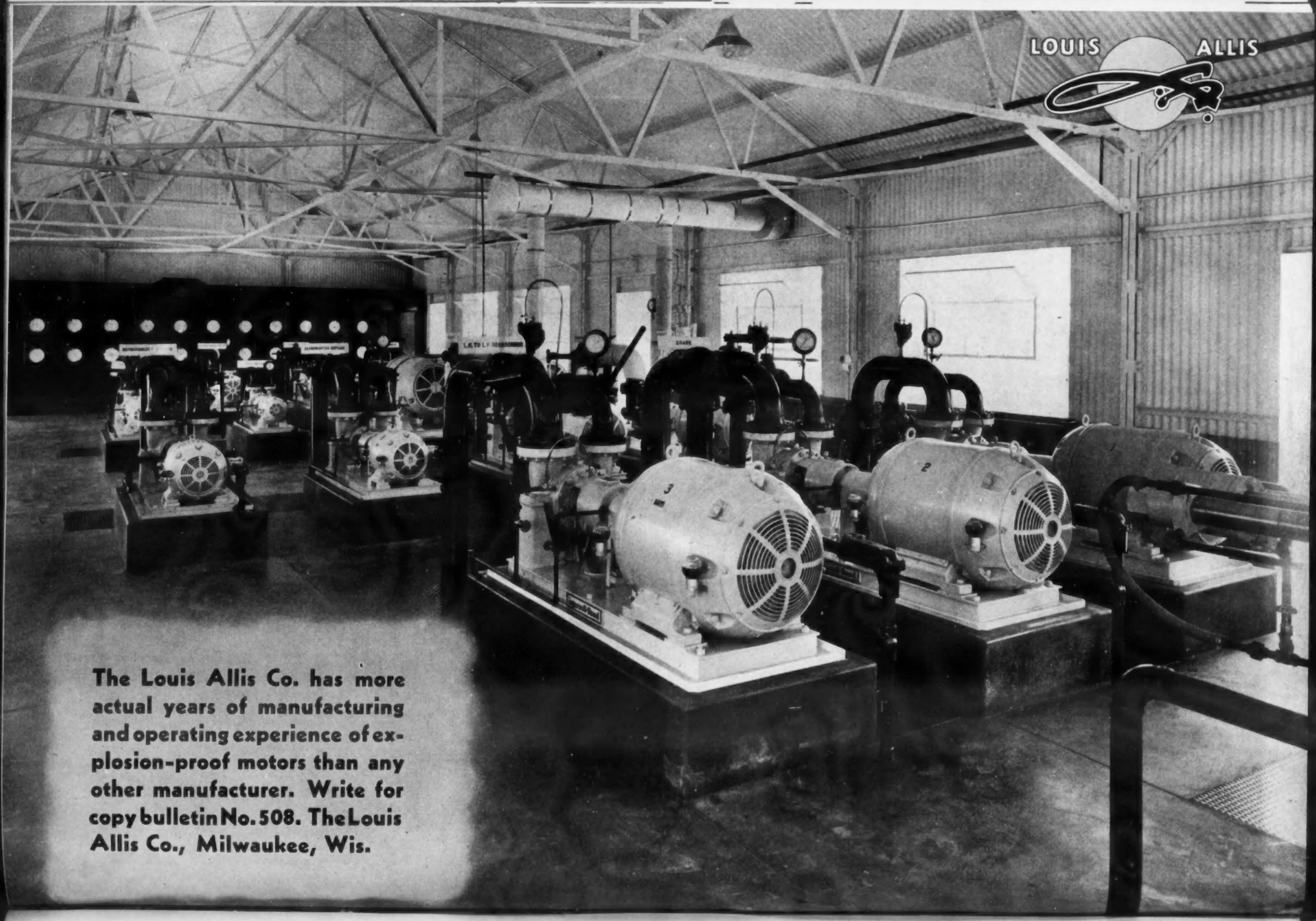
Secondary Recovery: N. M. Hutchinson, Cities Service Oil Company, chairman; C. C. Rae, Skelly Oil Company, John Denman, Guy Berry, K. B. Barnes, Gulf Oil Corporation, C. O. Moss, Deep Rock Oil Company, Carl Weiner, J. F. Conley, Magnolia Petroleum Company, K. E. Beall, Phillips Petroleum Company, and T. A. Morgan.

Engineering: H. E. Zoller, Derby Oil Company, chairman; John Little, Vickers Petroleum Company, Frank Pickell, Stanolind Oil & Gas Company, E. O. Bennett, Continental Oil Company, Lloyd Pickrell, Henry Miller, Lario Oil & Gas Company, R. W. Bond, Shell Oil Company, Herb Reese, Sinclair Prairie Oil Company, Sam Springer, W. A. Ainsworth, F. E. Mallonee, Magnolia Petroleum Company, E. B. Shawver, and L. B. Taylor, State Corporation Commission.

Engineering: H. L. Donhaiser, The Pure Oil Company, chairman; C. C. Erby, Turner Petroleum Company, Sam Burman, Sun Oil Company, W. L. Daust, Department of Conservation, R. G. Smith, Smith Petroleum, W. C. Taggart, Taggart Bros., Inc., Worth Hower, Muskegon Development Company, C. J. Ellis, Socony Vacuum Oil Company, Lester LaFavour, Gulf Refining Company, Ward Blunt, American Drilling Company, Robert W. Atha, Atha Drilling Company, and S. E. Furman, The Ohio Oil Company.

Well Spacing: W. A. Thomas, The Ohio Oil Company, chairman; Jed Mabius, Gulf Refining Company, Alan Morrow, Roosevelt Oil Company, Guy Chapman, Chapman Oil Company, C. C. Addison, Pure Oil Company, Victor Wilson, C. W. Teater, F. R. Frye, Department of Conservation, Don Holbrook, Freeman Oil Company, G. F. Stewart, Stewart Oil Company, and W. Spencer Cook, Independent Producer.

Unitization: J. C. Foster, Socony-Vacuum Oil Company, chairman; T. C. Bowler, Sun Oil Company, Russell Furbee, Gordon Oil Company, M. R. Joy, Cities Service Oil Company, Glen Caley, Basin Oil Company, F. A. Calvert, Pure Oil Company, Paul Whitney, Wolverine Natural Gas Company, R. A. Smith, Department of Conservation, Lee La-



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marr, Carter Oil Company, William Henry, Weber Oil Company, S. L. McCall, Fisher McCall Company, and Clarence Welsh, Welsh Oil Company.

Secondary Recovery: T. J. Weaver, American Production Company, chairman; E. A. Newman, Smith Petroleum Company, Glen Sleight, Sun Oil Company, H. L. Fruechtenicht, Consumers Power Company, Don Rayburn, H. L. Crider, Muskegon Development Company, John Robinson, West Michigan Consumers Company, Lee S. Miller, Department of Conservation, Robert L. Tope, Talbot Oil Company, and Carl Moses, Turner Petroleum Company.

Illinois Subcommittees

To expedite the work of the temporary subcommittees serving the states of Illinois, Indiana and Kentucky, the District 2 Production Committee appointed the temporary subcommittees to serve on a pool basis for the crude oil and natural gas pools scattered throughout the three states. Personnel of these temporary subcommittees according to the pool or pools they serve is set forth below:

Albion Pool, Edwards County: J. D. Sanford, Tuesday Oil Company, chairman; C. R. Allen, Continental Oil Company, Frank Severns, Superior Oil Company, Fred Noah, Mono Oil Company, and W. S. Churchill, Arrow Drilling Company.

Benton-West Frankfort Pool, Franklin County: Max Sherwood, Shell Oil Company, chairman; E. S. Adkins, K. A. Simmons, W. C. McBride, Inc., J. W. Menhall, E. G. Robinson, Shell Oil Company, and H. W. Wegener.

Bone Gap, Bonpas, West Bonpas, Parkersburg Pools in Edwards and Richland Counties: C. C. Carroll, The Ohio Oil Company, chairman; W. S. Corwin, Tide Water Associated Oil Company, M. R. Joy, Cities Service Oil Company, Paul Osborne, Case-Pomeroy, Ivan G. Burrell, The Ohio Oil Company, and E. J. Reading, Sun Oil Company.

Braden Pool, Hamilton County: J. B. Whisenant, chairman; Harold S. Williams, Reward Oil Company, W. C. Kneale, The Texas Company, Max Sherwood, Shell Oil Company, Asa Lee, Kingwood Oil Company, T. B. Steele, Kewanee Oil Company, and R. C. Brannin, Magnolia Petroleum Company.

Calvin Pool, White County: Seth W. Herndon, chairman; Barron Kidd, R. B. Kelly, The Pure Oil Company, R. C. Brannin, Magnolia Petroleum Company, and Ray Moore, Arrow Drilling Company.

Clay City, Enterprise, West Enterprise Pools, Clay and Wayne Counties: R. B. Kelly, The Pure Oil Company, chairman; Earl W. Wallace, Wiser Oil Company, J. D. Sanford, Tuesday Oil Company, N. V. Duncan, and J. W. Sanders.

Dahlgren Pool, Hamilton County: W. S. Corwin, Tide Water Associated Oil Company, chairman; Max Sherwood, Shell Oil Company, Paul Pugh, and Jack Jordan, Sinclair-Wyoming Oil Company.

Hoodville and Dale Pools, Hamilton County: W. C. Kneale, The Texas Company, chairman; R. B. Kelly, The Pure Oil Company, Asa Lee, Kingwood Oil Company, E. G. Robinson, Shell Oil Company, A. A. Cameron, Cameron Oil Company, R. E. Damp, Carter Oil Company, J. F. Hinkle, Max Sherwood, Shell Oil Company, N. V. Duncan, O. J. Stephens, Gulf Refining Company, and Ivan G. Burrell, The Ohio Oil Company.

Dundas, West Liberty, Boos and North Boos Pools, Richland and Jasper Counties: R. B. Kelly, The Pure Oil Company, chairman; W. C. Kneale, The Texas Company, and I. D. Lain, Lain Oil & Gas Company.

Elkville Pool, Jackson County: Earl W. Wallace, Wiser Oil Company, chairman.

Ellery Pool, Edwards County: T. C. Stauffer, Sun Oil Company, chairman; W. S. Corwin, Tide Water Associated Oil Company, and C. I. Crippin, New Penn Development Corporation.

West Grayville Pool, White County: Fred Noah, Mono Oil Company, chairman.

Griffin and Keensburg Pools, Wabash County: W. W. Keeler, Skelly Oil Company, chairman; C. R. Allen, Continental Oil Company, G. C. Schoonmaker, Longhorn Oil Corporation, Guy Mabee, Mabee Oil & Gas Company, O. J. Stephens, Gulf Refining Company, Kenneth Gow, Superior Oil Company, and R. C. Brannin, Magnolia Petroleum Company.

Herold Pool, White County: R. E. Damp, Carter Oil Company, chairman; and Guy Mabee, Mabee Oil & Gas Company.

Inman Pool, Gallatin County: Seth W. Herndon, chairman; N. V. Duncan, B. K. Leach, Casner Oil & Gas Company, and George Baldwin.

Iron Pool, White County: K. A. Simmons, W. C. McBride, Inc., chairman; R. E. Damp, Carter Oil Company, Max Sherwood, Shell Oil Company, Jack Jordan, Sinclair-Wyoming Oil Company, and J. W. Carter.

Irvington Pool, Washington County: O. J. Stephens, Gulf Refining Company, chairman; Arnold Dahl, Shell Oil Company, Harold S. Williams, Reward Oil Company, R. C. Brannin, Magnolia Petroleum Company, and Asa Lee, Kingwood Oil Company.

Johnsonville Pool, Wayne County: W. C. Kneale, The Texas Company, chairman; Earl W. Wallace, Wiser Oil Company, Max Sherwood, Shell Oil Company, Oscar Nelson, United Producing Company, and R. E. Damp, Carter Oil Company.

Lakewood Pool, Shelby County: R. E. Damp, Carter Oil Company, chairman; W. H. Sloan, and C. Hayden Davis, Oil, Inc.

Louden Township Pool, Fayette County: R. E. Damp, Carter Oil Company, chairman; J. H. Steinmesch, Minerva Oil Company, J. B. Whisenant, K. A. Simmons, W. C. McBride, Inc,. Sam D. Jarvis, Jarvis Bros. & Marcell, Max Sherwood, Shell Oil Company, W. C. Kneale, The Texas Company, and R. C. Brannin, Magnolia Petroleum Company.

Mason Pool, Effingham County: Asa Lee, Kingwood Oil Company, chairman; J. F. Hinkle, W. S. Corwin, Tide Water Associated Oil Company, and R. E. Damp, Carter Oil Company.

Maunie Pool, White County: Barron Kidd, Cherry, Kidd and Sloan, chairman; R. C. Brannin, Magnolia Petroleum Company, W. W. Keeler, Skelly Oil Company, C. R. Allen, Continental Oil Company, and S. C. Yingling, Yingling Bros.

Mt. Carmel Pool, Wabash County: Arnold Dahl, Shell Oil Company, chairman; C. O. Pippinger, Hall-Jordan Oil Company, R. W. O'Meara, W. W. Gray, and H. H. Weinert.

New Harmony Pool, White County: Kenneth Gow, Superior Oil Company, chairman; W. S. Corwin, Tide Water Associated Oil Company, and E. J. Reading, Sun Oil Company.

New Haven Pool, White County: Jack Jordan, Sinclair-Wyoming Oil Company, chairman; R. L. Storey, Hiawatha Oil & Gas Company, and G. C. Schoonmaker, Longhorn Oil Corporation.

Omaha Pool, Gallatin County: R. E. Damp, Carter Oil Company, chairman; A. A. Cameron, Cameron Oil Company, and W. C. Kneale, The Texas Company.

Patoka and East Patoka Pools, Marion County: C. J. Haas, Adams Oil & Gas Company, chairman; E. G. Robinson, Shell Oil Company, O. J. Stephens, Gulf Refining Company, and Ernest A. Obering.

Phillipstown Pool, White County: B. F. Laughery, Phillips Petroleum Company, chairman, and E. J. Reading, Sun Oil Company.

Posey Pool, Clinton County: Max Sherwood, Shell Oil Company, chairman.

Sailor Springs Pool, Clay County: Carl Robinson, Gulf Refining Company, chairman; O. J. Stephens, K. A. Simmons, W. C. McBride, Inc., John W. Davis, Benedum-Trees Oil Company, and J. W. Sanders.

Stokes and Storm Pools, White County: R. B. Kelly, Pure Oil Company, chairman; R. E. Damp, Carter Oil Company, Jake Shulman, Shulman Bros., T. W. Eason, Eason Oil & Gas Company, Edward Robinson, Smokey Oil Company, Harry L. Blackstock, and Jack Jordan, Sinclair-Wyoming Oil Company.

Roland Pool, White County: R. E. Damp, The Carter Oil Company, chairman; Ray Moore, Arrow Drilling Company, M. R. Joy, Cities Service Oil Company, Asa Lee, Kingwood Oil Company, and Jack Jordan, Sinclair-Wyoming Oil Company.

Woodlawn and Woodlawn Extension Pools, Jefferson County: R. C. Brannin, Magnolia Petroleum Company, chairman; Max Sherwood, Shell Oil Company, Asa Lee, Kingwood Oil Company, W. C. Kneale, The Texas Company, and K. A. Simmons, W. C. McBride, Inc.

Walpole Pool, Hamilton County: W. C. Kneale, The Texas Company, chairman, and J. D. Sanford, Rockhill Oil Company.

Ohio Subcommittees

Personnel of the temporary subcommittees for Ohio has been appointed as follows:

Well Spacing and Unitization: W. E. Fergerson, Ohio Fuel Gas Company, chairman; J. J. Schmidt, East Ohio Gas Company, George Myers, Sun Oil Company, Fred Moore, Magnolia Petroleum Corporation, Carl Schwyn, Guy L. Shrider, E. H. Everett Company, W. K. Harrington, Henderson Oil Company, H. B. Walker, R. A. Koenig, The Ohio Oil Company, and Frank Quinn.

Secondary Recovery and Engineering: J. E. Schaefer, East Ohio Gas Company, chairman; Phillip N. Faine, Ohio-Pennsylvania Grade Oil Producers Association, H. J. Lowe, Pure Oil Company, George Lindberg, Sun Oil Company, J. J. Klise, Kemrow Company, J. P. Connor, Kacaelmacher Estate, George Jewell, J. V. Bowman, E. V. O'Rourke, Ohio State University, William Byers, Dymo Company, and J. C. Askam, The Ohio Oil Company.

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REASONABLE RENTAL CHARGES

Rental charges for the E-C Inclinometer are reasonable and not higher than those of other inclinometers, which are not self-checking, do not permit multiple recording.

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The automatic and multiple recording features and high speed of operation result in a minimum loss of rig time.

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Markets Continue Extremely Strong; Some Prices Higher

Markets continued strong during the past week, as supplies of oils everywhere were light in relation to the prevailing record-breaking demand. In many instances, suppliers turned away available business from new buyers at prices higher than they were obtaining from regular customers, because of inability to take care of additional trade.

Through consideration for regular customers and in reflection of the pressure of the government against price increases, quotations generally were maintained at about the same levels as previously.

However, increases occurred in a few instances. Natural gasoline was generally ⅛ cent a gallon higher in the Mid-Continent, and high octane refined gasoline was quoted ¼ cent higher by some refiners of the Gulf Coast. The government has increased the ceiling on such Gulf Coast material from 6 to 6½ cents a gallon, but independent refiners of the district are agitating for elimination of any ceilings, and some plant owners are asking 6¾ cents.

Demand for refined gasoline was reported heavy, with supplies extremely tight in practically all districts, including the Gulf Coast, the Mid-Continent, the Middle West, and naturally, the East Coast. However, prices were generally unchanged, except for the marking up of the high octane grades by some suppliers of the Gulf Coast.

Although the government will use a new basis for restricting deliveries of gasoline to dealers and consumers on the East Coast during October, it is indicated that about a 10 percent curtailment of consumption will be achieved, which would be the same as the cut in September.

Heating oil and kerosene were in good demand, despite the fact that colder weather had not yet arrived to stimulate purchases. In the Chicago district, demand was reported on the increase, and the lowest prices at which supplies of No. 1 to No. 3 fuel oils could be obtained were up ⅛ cent from a week previously.

Heavy fuel oils continued generally unchanged in price, but demand was extremely good, and shipments against contracts were heavy.

Lubricants remained strong in the Mid-Continent as well as Western Pennsylvania. Bright stocks were quoted ½ to 1 cent a gallon higher by Oklahoma refiners, and neutrals were marked up 1 cent by plant owners that had been quoting the lowest available prices. In the Pennsylvania refining district, demand for lube stocks continued exceptionally heavy, but prices generally were unchanged.

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[2]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[5]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
October 7	3,435,850	3,505,000	231,564,000	[5]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[2]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,273,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[4]48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941:						
January 25	3,599,100	3,625,000	260,093,000	88,762,000	39,039,000	100,297,000
February 22	3,629,650	3,590,000	261,783,000	95,812,000	34,381,000	98,631,000
March 29	3,746,550	3,625,000	266,187,000	[2]99,727,000	29,949,000	96,152,000
April 26	3,726,850	3,675,000	266,149,000	96,647,000	29,543,000	94,732,000
May 31	3,786,100	3,699,000	262,356,000	93,845,000	33,524,000	92,757,000
June 28	3,847,250	3,930,000	259,399,000	91,461,000	35,732,000	92,896,000
July 12	3,870,750	[1]4,090,000	255,567,000	89,561,000	37,812,000	92,699,000
August 2	3,695,250	3,845,000	252,535,000	86,779,000	41,433,000	94,800,000
August 9	3,911,950	3,835,000	251,945,000	86,022,000	42,136,000	95,412,000
August 16	3,953,300	3,920,000	251,013,000	83,777,000	43,558,000	94,752,000
August 23	3,975,450	3,975,000	248,910,000	82,566,000	44,282,000	94,308,000
August 30	4,004,700	4,070,000	249,413,000	81,672,000	45,351,000	95,052,000
Sept. 6	3,814,950	3,995,000	247,528,000	81,571,000	46,127,000	95,125,000
Sept. 13	4,033,700	4,010,000	246,164,000	80,555,000	47,271,000	95,753,000
Sept. 20, 1941	[1]4,074,200	3,995,000	.....	80,199,000	48,907,000	95,005,000
Sept. 20, 1940	3,621,050	[8]3,592,000	[4]262,475,000	82,565,000	47,439,000	107,403,000
Change in past year.	+12.5%	+11.2%	—6.2%	—2.8%	+3.1%	—11.5%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks Sept. 14, 1940.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California
[8] September, 1940, daily average.

High Refinery Runs Meet Oil Demands; East Being Supplied

Generally satisfactory results were obtained by the industry during the week ended September 20, in keeping abreast of the record-breaking demands made upon it. Crude-oil production was stepped up to a new all-time peak, and refinery runs of crude, although down slightly from the week before, were close to their all-time high and 11.2 percent greater than the daily average for September last year. Production of finished products at the refineries naturally was in line with the near-record processing of crude, and changes in stocks were about normal for the season.

The special problem of keeping the East Coast supplied was again met with remarkably favorable results; for inventories of heating oils in that district were increased more than normally, and stocks of heavy fuel oils were drawn upon less than in the corresponding week last year, while gasoline storage was increased, in contrast with a reduction in the like week a year ago.

Having averaged 4,074,200 barrels daily, a new record, crude-oil production in the week of September 20 was 12.5 percent greater than in the corresponding week last year.

Crude runs to stills sagged to 3,995,000 barrels daily from 4,010,000 the previous week, but were 11.2 percent above the daily average runs of 3,592,000 barrels in September of last year. The new rate of refinery operations represented 92.9 percent of rated capacity of the country's plants, against 93.3 percent the week before.

East Coast refineries operated at 89.9 percent of capacity, having run 605,000 barrels to stills daily, on the average; in the previous week, they operated at 89 percent, processing 599,000 barrels daily. In five of the major refining districts, runs exceeded rated capacity, those areas having included the Appalachian region, the Indiana-Illinois-Kentucky district, the Texas Gulf Coast, the Louisiana Gulf Coast, and North Louisiana and Arkansas. Oklahoma-Kansas-Missouri plants operated at 93.4 percent of capacity, Inland Texas at 74.1 percent, the Rocky Mountain area at 91.2 percent, and California at 71.7 percent.

Gasoline stocks were lowered about 350,000 barrels in the week ended September 20, to a total of 80,199,000 barrels, which was 2.8 percent less than that of 82,565,000 barrels for the same time last year. On the East Coast, however, there was during the week an increase of 156,000 barrels in gasoline stocks, from 19,238,000 to 19,394,000 barrels. In the like week last year, there was a withdrawal of 502,000 barrels. The East Coast inventory of 19,394,000 barrels as of September 20 this year was 8.1 percent smaller than that of 21,114,000 barrels held a year previously. Appalachian district stocks of gasoline also are lower than a year ago —2,968,000 barrels against 3,224,000. North Louisiana and Arkansas likewise show a decrease, and California's gasoline inventory is 2,000,000 barrels smaller than a year ago at 13,551,000 barrels. In all other districts of the country,

present stocks of gasoline are larger than those held a year ago.

United States stocks of gas oil and distillate fuel were increased from 47,271,000 to 48,907,000 barrels, and the latter quantity was 3.1 percent above that of 47,439,000 barrels for a year earlier. On the East Coast, inventories were increased by the large amount of 1,227,000 barrels, to a total of 17,645,000 barrels, which was practically as much as the 17,779,000 barrels on hand at the corresponding time last year. Since June 28, the stocks of this product on the East Coast have been increased 8,224,000 barrels, against a build-up of only 7,378,000 barrels in the like period last year. Appalachian stocks are larger than a year ago, and those of the Indiana-Illinois-Kentucky area are nominally larger. Similarly, gains are shown for all other districts except the Texas Gulf Coast, including one of over 2,000,000 barrels in California. Coastal Texas has 6,211,000 barrels in storage, against 7,474,000 a year ago.

National stocks of residual fuel oil were reduced to 95,005,000 barrels from 95,753,000 in the week ended September 20, and then were 12,400,000 barrels (11.5 percent) smaller than a year previously, although California accounted for 11,500,000 barrels of the decrease. On the East Coast, the inventory is 2,300,000 barrels smaller than a year ago, totaling 10,042,000 barrels against 12,381,000. In the week of September 20, stocks of the district were reduced 199,000 barrels, compared with a decrease of 256,000 barrels in the like week last year. In July, August, and

Wholesale Prices of Refined Products in Principal Markets

	Range Last Week (Cents a gal.)		Changes from Week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
60 Octane and Under	5¼	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane, Ethyl	6¾	7¼	...	...
Mid-Western Tank Car:				
60 Octane and Under	5⅛	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane, Ethyl	7⅜	7⅝	...	...
New York Harbor:				
68-70 Octane	8	8	...	...
72-74 Octane	8	8½	...	...
Min. 80 Octane, '39 Research	8½	9	...	...
Gulf Coast:				
60 Octane unleaded	5½	5¾	...	...
65 Octane unleaded	5¾	6	...	...
68 Octane unleaded	6¼	6½	...	...
70 Octane unleaded	6¼	6⅝	...	...
72-74 Octane leaded	6¼	6⅜	...	...
Min. 80 Octane, '39 Research	6½	6¾	...	+¼
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	4⅝	4¾	...	+⅛
F.O.B. Br'kenr'ge, Tex.	4⅝	4⅝	+⅛	+⅛
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅝	4¾	...	...
42-44 water white	4½	4⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4⅝	4¾	...	...
42-44 water white	4½	4⅞	...	...
New York Harbor	5¾	5¾	...	...
RANGE OIL				
At Oklahoma Refineries	4	4⅜	...	...
In Mid-Western Market Group 3, basis	4	4⅛	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3½	4¼	...	...
No. 3	3⅝	3⅝	...	...
Mid-Western Tank Car:				
No. 1 white	3⅞	4⅛	+⅛	...
No. 3	3⅝	3½	+⅛	...
New York Harbor:				
No. 1	5¾	5¾	...	...
No. 3	5¼	5¼	...	...

	Range Last Week (Per Bbl.)		Changes from Week Before	
HEAVY FUELS				
Oklahoma Refineries:				
No. 6	$0.80	$0.90	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.87½	...	...
New York Harbor:				
No. 5	1.65	1.75	...	...
No. 6	1.35	1.50	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$ .95	...	...
New York Harbor	1.35	1.50	...	...
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.55	$1.55	...	...
New York Harbor	2.15	2.15	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210° 10-25 pour test	22½	23	+1	+½
Neutral oil pale No. 3 Color, 150 viscosity at 100°, 0-10 pour test	14½	14½	+1	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	25	28	...	...
Neutral Oil No. 3 Color, 150 viscosity at 70°, 25 pour test	31	31	...	—1

United States Crude Oil Production Again Breaks Records

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable (Barrels Daily in Sept.)	BARRELS DAILY FOR WEEK ENDED Sept. 20	Sept. 27
TEXAS:				
Texas Panhandle	.....	.....	86,100	80,400
North Texas	.....	.....	102,100	104,100
West Central Texas	.....	.....	31,000	31,200
West Texas	.....	.....	278,900	279,500
East Central Texas	.....	.....	84,650	84,700
East Texas Field	.....	.....	369,750	370,300
South Texas	.....	.....	216,950	217,600
Texas Gulf Coast	.....	.....	293,100	292,500
Total Texas	1,378,600	1,357,000§	1,462,450	1,460,300
CALIFORNIA:				
Long Beach	.....	.....	39,300	38,400
Midway-Sunset	.....	.....	48,200	43,600
Kettleman Hills	.....	.....	40,000	37,900
Wilmington	.....	.....	86,000	85,400
Others	.....	.....	435,100	426,900
Total California	634,700	610,000*	648,600	632,200
OKLAHOMA:				
Oklahoma City	.....	.....	88,550	82,500
Seminole Area	.....	.....	107,450	110,900
Others	.....	.....	226,250	231,150
Total Oklahoma	489,800	428,000	422,250	424,550
ILLINOIS:				
Salem	.....	.....	79,150	81,300
Louden	.....	.....	62,000	61,750
Centralia	.....	.....	9,100	9,200
Other New Pools	.....	.....	240,200	251,050
Old Pools	.....	.....	11,350	11,400
Total Illinois	392,500	.....	401,800	414,700

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable (Barrels Daily in Sept.)	BARRELS DAILY FOR WEEK ENDED Sept. 20	Sept. 27
LOUISIANA:				
North Louisiana	.....	.....	78,450	79,300
South Louisiana	.....	.....	254,100	254,800
Total Louisiana	324,000	328,646	332,550	334,100
KANSAS	239,800	248,800	258,800	258,000
NEW MEXICO	113,200	113,200	114,500	115,200
EASTERN STATES:				
Pennsylvania Grade	75,400	.....	74,500	74,700
Others, Eastern	24,400	.....	18,500	18,500
Total Eastern States	99,800	.....	93,000	93,200
MOUNTAIN STATES:				
Wyoming	85,000	.....	82,000	86,700
Montana	20,200	.....	20,500	20,500
Colorado	4,500	.....	4,500	4,800
Total Mountain States	109,700	.....	107,000	112,000
MICHIGAN	39,500	42,000†	51,000	51,300
INDIANA	21,400	.....	19,500	20,250
ARKANSAS	79,000	76,013	75,650	75,700
MISSISSIPPI	33,000	.....	52,850	54,800
NEBRASKA	5,000	.....	7,100	6,900
‡Total 8 Prorated States	3,298,600	3,203,659	3,365,800	3,351,350
Total United States	3,960,000	.....	4,047,050	4,053,200

* Recommendation of Conservation Committee of California Oil Producers.
† Estimate of actual production under prescribed regulations, which do not fix a definite state total allowable.
‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.
§ Calculated daily average of actual production at beginning of September, allowing for usual under production of 3½ percent below net allowable, which was figured as of September 1, at 1,406,362 barrels daily. However, allowable normally increases as new wells are completed, and actual daily average production for month is expected to conform with Bureau of Mines estimate of demand. Under September order, most Texas fields were ordered shut down September 1, 6, 7, 13, 14, 20, 21, 27, 28 and 30. Panhandle was ordered shut down September 7, 14, 21 and 28.

September of this year, the East Coast inventories have been increased a net amount of 1,802,000 barrels, whereas in the corresponding period last year there was a net addition of 3,539,000 barrels. Appalachian stocks are slightly smaller than a year ago, as are those of Oklahoma-Kansas-Missouri, Inland Texas, North Louisiana-Arkansas, and the Rocky Mountain states. On the other hand, stocks are larger than a year ago in Illinois-Indiana-Kentucky, the Texas Gulf Coast, and the Louisiana Gulf Coast.

Production Up Slightly To New All-Time High

Production of crude oil in the United States slightly increased again in the week ended September 27 and established a new all-time high of 4,053,200 barrels daily, THE OIL WEEKLY reported. That was 6150 barrels more than output the previous week and 93,200 more than the daily average demand for domestic crude in September as estimated by the Bureau of Mines.

California production was reduced about 16,000 barrels from the previous week's rate in averaging 632,200 barrels daily, and Texas was down about 2000 barrels to 1,460,300 daily. But Illinois jumped 13,000 barrels to 414,700 daily, while there were small increases for Oklahoma, Louisiana, New Mexico, Wyoming, Mississippi, and several other states. Kansas was virtually unchanged at 258,000 barrels daily.

Bureau Reports Drop In July Production

Declining for the first time since last November, daily average crude production in July dropped to 3,814,500 barrels from 3,834,200 barrels in June, according to the monthly report of the Bureau of Mines.

Most of the states increased their production in July, it was explained, but these gains were not sufficient to balance a material drop in Texas. Kansas established another new record and Illinois production continued to rise, but output in Coastal Louisiana, which had reached new peaks steadily for five successive months, declined.

"The balance of supply and demand for crude oil in July was similar to that in June," the bureau commented. "The decline in production was balanced by a gain in imports so that the increase in crude demand was reflected in a larger stock withdrawal. The decline in stocks of refinable grades in July was about 3,700,000 barrels, which brought the total to 255,378,000 barrels, compared with 263,498,000 barrels on hand a year ago."

Daily average crude runs to stills reached a new record of 3,909,000 barrels, it was disclosed. The yields for the major products, however, showed little change from June, the residual yield declining 0.4 percent from the preceding month, the distillate yield rising 0.3 percent to 13 percent and the gasoline yield 0.1 percent to 44.6 percent.

"The total demand for motor fuel in July was 64,509,000 barrels (assuming no imports for consumption), or 16 percent higher than in 1940," the report stated. "The gain in actual consumption was probably less because July, 1940, was a relatively low month and because of speculative buying in fear of a shortage in July, 1941. The production of motor fuel reached a new record, but the heavy demand resulted in a draft of about 5,000,000 barrels on gasoline stocks. These stocks, finished and unfinished, totaled 84,701,000 barrels on July 31, compared with 89,065,000 barrels a year ago. Stocks on the East Coast on July 31, 1941, were 21,655,000 barrels, compared with 22,387,000 barrels a year ago."

Aviation gasoline production for the month reached 1,640,000 barrels from 1,531,000 barrels in June, and transfers to regular gasoline were 84,000 barrels against 307,000 barrels. No figures were available for either exports of domestic demand, but stocks increased from 7,341,000 barrels June 30 to 7,491,000 barrels July 31.

The report, for the first time, carried no details whatever of demand for the month, and figures for previous months were revised to eliminate from the East Coast statistics imports, exports and stocks of "shuttle" oil and stocks transferred to the custody of the United Kingdom pool board.

The demand figures were dropped, it was explained, because of a desire to get the report out within a reasonable time, and it was decided to issue the statement without waiting for the export-import data, which is compiled by the Department of Commerce.

The export-and-import figures, it was said, will be received eventually and the demand statistics may be issued as a supplement to the main report.

Bureau of Labor Statistics figures placed the price index for petroleum products at 60.9 in July, compared with 59.9 in June and 49.5 in July, 1940. The crude oil capacity represented by the report was 4,413,000 barrels, giving an operating ratio of 89 percent, compared with 88 percent in June and 80 percent in July, 1940.

Refineries Operated at High Rate During July

Daily average runs to stills in July reached a new high figure of 3,909,000 barrels, 44,000 barrels above June and 428,000 barrels above July, 1940, it was reported September 24 by the Bureau of Mines.

Total receipts of crude at refineries were 123,485,000 barrels of which 118,154,000 barrels was domestic and 5,331,000 barrels foreign oil, the daily average of 172,000 barrels for the latter being 28,000 barrels above the June figure, it was stated.

With fuel and losses of 254,000 barrels, receipts were greater than consumption, with the result that stocks at refineries increased from 51,580,000 to 53,631,000 barrels during the month, the latter figure, however, being about 3,000,000 barrels under the July 31, 1940, stocks.

Less Than Third Producers Paid Income Tax in 1939

Less than a third of the oil-producing corporations of the country reported taxable income in 1939, an analysis of the income returns for that year by the Bureau of Internal Revenue has disclosed.

Of 5974 such corporations, the bureau reported, only 1892 paid taxes, having an aggregate gross income of $403,360,000 and a net income of $69,695,000 on which they paid $10,854,000 in income and $71,000 in excess profits taxes.

Another 700 corporations were inactive during the year and the remaining 3382 companies, with an aggregate gross income of $345,627,000, had a deficit after deductions of $57,561,000.

Both groups paid cash dividends, it was shown, but whereas the tax-paying corporations reported a total of $47,720,000 so distributed and untaxed companies paid only $15,921,000.

Colombian Ministry Plans Nationalizing Oil Industry

The Ministry of Mines and Petroleum of Colombia apparently looks forward to nationalization of the DeMares Concession properties of Tropical Oil Company, a company against which a government suit is pending in the supreme court to terminate the life of the concession in 1946. Dr. J. P. Manotas, head of the ministry, is quoted in a recent statement as expressing hope that the supreme court decision would be against the company and that by the resultant taking over of the company's refinery at Barranca Bermeja the government would not have to build a refinery. Last month Dr. Manotas advocated training of native Colombians to assume operation of the DeMares concession in case the concession is ordered surrendered in 1946.

An index of strong interest in Colombian oil prospects is seen in recent government acceptance of two bids for concessions and approval of transfer of a concession to a company having American participation. The Ministry of Mines and Petroleum has accepted a bid by A. A. Tavera for a 100,000-acre tract in Antiquoia Department near the Yondo Concession of El Condor Petroleum Company. The second bid accepted was made by Compania de Petroleos Gran Colombia, of which Standard Oil Company is a stockholder, for a tract of 123,500 acres in Magdalena department, Santa Ana municipality. The ministry has approved transfer by S. C. Roldan of a 122,000-acre concession, Bolivar department, to Compania de Petroleos Sierra Nevada, in which Standard Oil Company of California is a stockholder. Terms of the transfer require that drilling begin by November, 1942.

Showings of oil are reported in Shell Petroleum Company of Colombia's Casabe 1, test on the Yondo Concession, middle Magdalena River valley of Colombia. At 6880 feet, 20.3° API gravity oil appeared in oil-water mixture. About 1400 feet of 13-inch and 6700 feet of 7-inch casing have been set. The well is drilling below 7230 feet. The company is reported to have begun a second test on the concession.

On its Villamizar Concession in the Magdalena River valley, Compania Colombiana de Petroleos Occidental, in which Standard Oil Company of California has substantial interest, spudded in Culimba 1 on September 12.

Richmond Petroleum Company, Standard Oil Company of California subsidiary, has received at Buenaventura, Colombia, 12 heavy-duty trucks for exploratory work to be carried out in the Llanos region, where it has a 247,000-acre concession. The company is preparing to drill a test in the Magdalena River valley 8 miles northwest of San Pablo, and a terminal camp on the river is about completed.

U. S. FIELD OPERATIONS

Illinois Basin

Two New Pools, One Extended, One Confirmed

Franklin County pool opener near completion; pool opened in Marion County; Rising Sun pool extended; opening of Benoist field west of Centralia confirmed by new producer.

Franklin County: Mohawk Drilling Co. et al's Kasper 1, SE SW NW 1-6s-2e, pumped 250 bbls. in 24 hours from Benoist at 2604-2323 ft. after shot. This well opens a new field a mile and three quarters northwest of Benton and gives the county its first Benoist production. When completed it probably will make 400 bbls. daily, according to observers. Mohawk's Mack Uhls 1, NE SE NW 5-6s-2e, 5 miles northwest of Benton, believed running 15 ft. high structurally and was drilling near the Cypress. Ele. 571, Glen Dean 2303; Tar Springs carried 70 ft. of broken oil and water saturation.

Marion County: Swan-King Oil Co.'s Kotva 1, C S½ SW NW 36-4n-2e, completed in Rosiclare to open field, pumped 70 bbls. in 24 hours from pay at 2087-2100 ft.; had been shut down several weeks. Kotva 2, an offset, swabbed 270 bbls. in 24 hours from Rosiclare pay at 2090-2104 ft.

White County: McElvain Brothers' Poole-Parr 1, SE SW NE 13-6s,10e, swabbed 7 bbls. of oil hourly from Palestine at 2010-18 ft. to extend Rising Sun field three eighths of a mile to the north. Cherry Kidd et al staked location one location south for Henry J. Karch 6, NE NW SE 13-6s-10e.

Clinton County: Eddie Self's Coe 1, NW SW SW 14-1n-1w, south offset to discovery well of West Centralia pool, pumped 125 bbls. initially of fluid, a heavy percentage of water, from Benoist sand. Self's Coe 2, NE SW SW 14-1n-1w, east offset to 1, moving in.

Jefferson County: Eason Oil Co.'s Gilbert 1, NE NW SE 16-3s-1e, shut down for orders, total depth 2425, through dry McClosky, two and one half miles southwest of South Woodlawn field.

Richland County: W. D. Anderson et al's Higgins 1, NE NE NW 35-2n-14w, three miles east Ohio's discovery, Koertge 1, abandoned 3017 ft. in McClosky. Drill stem showed 2500 ft. salt water and no oil in McClosky.

Gallatin County: Delta Drilling Co.'s Miner Unit 1, NE NE NW 28-8s-9e, pool opener, swabbing through casing 25 to 30 bbls. an hour, McClosky 2833-36, 49-55, 60-70 ft. The test is 2½ miles east of Ridgeway and 4 miles from other production.

Indiana

A Gibson County wildcat set casing to Cypress for east extension of Mt. Carmel pool of Wabash County, Illinois, and east of Hazleton, Gibson County, a new McClosky pool-opener was pumping 10 barrels an hour.

Gibson County — Princeton Mining Co.'s R. J. Smith 1, NE NE SE 21-1s-12w, near the east bank of the Wabash River east of Mt. Carmel pool of Wabash County, Illinois, set casing to test 10 ft of promising Cypress sand saturation. Starting at surface elevation of 386 ft, pay was cored from 1978 to 1987 ft. In Montgomery Township, Gibson County, six miles west of Owensville, Bert Field's et al G. Hall 1, SW NW SW 31-2s-12w, was showing for a new shallow pool-opener in the Bridgeport sand at 1095 to 1105 ft. Test was cable-tooled by Brooks Dozier of Vincennes. Prior to 10-quart shot well baled about 2 bbls of oil an hour. R. N. Sylvestre's Earl Potts 1, CW½ SW SW 24-1n-10w, new McClosky pool-opener 3 miles east of Hazleton, was on pump, making 10 barrels of oil an hour, natural, without acid, from 2 feet of pay at 1701-03 ft. A mile southwest of the new discovery, Walter Miller's Gladys Kerr 1, NE SW NE 26-1n-10w, was drilling with rotary at 1100 ft.

Posey County—In the Caborn field, Central States Oil Co.'s Louis Seifert 1, NW SW NW 30-6s-12w, was pumping about 40 barrels of oil and some water a day from Palestine sand. Dry through the Palestine and Cypress, however, drilling ahead, was Central States' Ed Rogge 1, SW SE 25-6s-13w.

Oklahoma

Guthrie Townsite Wildcat Checks High in Hard Going

Guthrie townsite wildcat seeks second Wilcox sand; nearby wildcat setting pipe for test of sand, running low; deepen prospective Seminole County pool opener with water content diminishing; gasser added to West Okemah field; new producer for Pottawatomie County area.

Logan County: Harry Miller et al's Katschor 1, wildcat on edge of Guthrie townsite, CN½ NE SW 7-16n-2w, drilling 5799 ft, very hard formation, using bit each trip, struck soft streak with sand grains 5793½ ft, first believed second Wilcox sand, still checking high; Deep Rock Oil Corp. et al's Murphy 1, NWc SE 11-17n-2w, 1 mi west Guthrie pool, top second Wilcox sand 5682 ft, drilling below 5692 ft, checking 100 ft low to pool proper, may plug back to test Bartlesville sand.

West of Cromwell: Stanolind et al's Buck 1, NW SE NW 11-10n-7e, prospective pool opener west of Cromwell field, swabbed 6 bbls oil in 3 hrs, water showing, deepening below 4419 ft in Wilcox sand water decreasing.

Okfuskee County: Burke-Greis et al's Clowers 1, SW NE 20-11-9e, topped Hunton lime 3858 ft, drilled to 3921 ft, well showing for est 14,000,000 cu ft gas daily; is operator's fourth in pool.

East Tecumseh: Sunray Oil Co.'s Galbreath 1, SWc 23-9-4e, Pottawatomie County, extends area east, topped second Wilcox sand 4519 ft, drill-stem test 4539-46 ft, hole filled with 1700 ft oil in 30 min, running casing to test; second Wilcox producer for many-zone field.

Kansas

Five New Oil Strikes Reported From Four Counties

Five new oil strikes in four Kansas counties open productive new pools; McPherson County wildcat shows for possible producer; favorable test abandoned.

Pratt County: Central Petroleum Co.'s Ward 1, SE NW 11-26s-12w, southwest of Zenith pool, filled 700 ft. with oil and still filling, producing through perforations in Viola lime at 4124-4138 ft., plug-back depth, well making 500,000 gas, water showing believed wash, testing. Originally drilled to 4323 ft., Arbuckle lime.

Barton County: Helmerich & Payne's Schmidt 1, SEc NW 22-20s-15w, southeast of Pawnee Rock pool ⅜ mi., swab 12 bbls. per hr., then flowed 1 bbl. per hour after perforating 3688-3691½ ft. Arbuckle dolomite acidized 500 gals., gas est. 1,000,000 cu. ft.; Arbuckle topped 3667 ft.; W. N. Bartlett's Moran 1, NWc 25-17s-11w, west of Bloomer pool, Arbuckle lime 3295-3999 ft., deepened 3321½, water showed plugged back 2 ft., swabbing 15 bbls. daily, putting on pump.

Barber County: Deep Rock Oil Corp.'s Skinner 1, CWL NW SW 21-31s-14w, 5 mi. southwest of Lake City pool, swabbed 25 bbls. oil, 21 bbls. water in 13 hrs., perforated 4527-50 ft. in Viola lime, may reperforate lower zones.

Rice County: Aladdin Petroleum Co.'s Lackey 1, CS1 SW SE 1-21s-6w, 1½ mi. southwest Barnholdt pool, top chat 3341 ft., drilled 3342 ft., good oil show in cuttings, circulating pending decision set pipe and test or deepen.

McPherson County: Westgate-Greenland Oil Co.'s Henne 1, NW SE SW 18-17s-1w, deepened to Arbuckle lime 3337-60 ft., good show oil, trace of water, plugged back 3066 ft., set whipstock to drill diverted hole.

Wildcat Abandoned: Pryor & Lockharts' Gergner 1, NEc 35-29s-14w, drilled 4767 ft. in Arbuckle lime, tested several zones for oil and water.

Nebraska

Two Oil Wells Added In Falls City Pool

Ohio Oil Co. and Harry Harper add two new wells to Falls City pool.

Richardson County — Ohio's Keim-Workman 2, NEc NW 18-1n-16e, drilled 2281 ft, perforated, swabbing est 300 bbls per day; Harry Harper's Sibbernsen 6, SE NE NW 20-1n-16e, perforated 2281-2285 ft, showed large amount of water, recemented and reperforated near top of Hunton lime below 2210 ft, est 400 bbls oil daily, little water showing.

West Texas

Spencer Confirmation Test Makes Good Flow

Confirmation test for Spencer pool, Ward County, makes big flow. Southern Crane County semi-wildcat passes up oil and gas in Lower Simpson, and big Ellenberger well for Sand Hills. East edge test for Foster field established record potential for area. District has substantial quota deep wildcats underway. Abell field lists third failure.

Ward County: Stanolind's Standard of Texas 1, north offset its Spencer pool discovery, snubbed in tubing under pressure after making unestimated large natural flow from Permian 2923-37 ft., elevation 2641 ft. Area involves reef-type structure, trending northwest-southeast, with narrow width.

Crane County: Continental's Jones 1, north corner H&TC 12, Block 3, 1½ miles south Ellenberger production in Sand Hills extension, prepared to core at 5993 ft. in Simpson, topped 5545 ft., elev. 2474 ft. Drill-stem test in Sharp sand zone 5725-63 ft. yielded light blow gas with oil-cut mud. Ordovician section this area varies greatly, as Simpson is absent in wells to north, but attains great thickness to the east.

Abell: Phillips Petroleum Co.'s Hall-Abell 1, SWc Lot 6, H&GN Sec. 25, east offset to oil production, abandoned 5693 ft., having passed up dry gas in Sharp sand. Stanolind's Rixse 1, Lot 6, H&GN 23, northwest edge production, flowed 693 bbls. oil and 1232 bbls. water initial, ½-in. choke, sand 5399-5416 ft., elev. 2394 ft. Magnolia's State-Silverman 2, southwest edge, rated 1503 bbls. initial ½-in., sand 5461-67 ft., topped Simpson 4891 ft. and Tulip Creek 5115 ft.

Winkler County: Magnolia's State-Walton 20, wildcat between Keystone and Kermit fields, awaiting small drill pipe after cementing 7-in. 8338 ft., total depth 8341 ft. and possibly in Silurian. Should latter zone prove dry will continue to Ordovician, original objective. Several zones in middle and lower Permian registered favorable production possibilities.

Wildcat Failure: Lynn County accounted for pair with the abandonment of Trinity Drilling Co. et al's Dan Auld 1 at 5202 ft. and Uscan Drilling Co.-Livermore et al's Rice 1 in middle Permian at 6431 ft. In Reeves County, Roy M. Johnson et al's Perkins 1 awaiting orders in water 3697 ft.

Prolific Ellenberger: American Liberty Oil Co. et al's Tubb 13, inside well for Sand Hills deep area, rated 9036 bbls. 37-gravity oil and 169 bbls. sulphur water initial, used 5000 gallons acid in Ellenberger dolomite 5749-63 ft. Gas-oil ratio 218/1. Second largest for field.

Foster Record: Broderick & Calvert's Bagley 6, NE SE NE T&P Section 17, T-2-S, east edge of field, flowed 6367 bbls. 36-gravity oil initial after 325-quart nitro shot 4235-4352 ft., total depth 4356 ft. It is largest for field and near record for Ector County. Gas-oil ratio calculated 194/1.

Slaughter Deep: Atlantic's Boyd-Humble 21, Cochran County sector, failed to encounter production below regular pay in drilling to Clear Fork at 7000 ft. Hole plugged back and 5½-in. at 5119 ft. to complete through perforations. Previous trys for production below regular Permian in area removed near edge production.

Lubbock County: L. C. Harrison et al's Nairn 1, county's only producer, resumed testing at 5002 ft. with rated yield of 200 bbls. oil daily, plus 4 to 6 bbls. salt water. Gas volume is inadequate to flow the well, which has been in process of completion since early August.

Deep Projects: Plymouth Oil Co.'s Alford 1, eastern Upton County, was drilling shaley-lime 9405 ft., apparently in Basal Permian. In Ward County, Shell Oil Co.'s Sealy-Smith 1, located on 21,600-acre block, was drilling lime at 5550 ft., having failed to show oil or gas in upper and middle Permian. Humble's Ellwood 1, southern Mitchell County Ordovician wildcat, was drilling limey-shale 5795 ft.

Crockett County: Continental et al's Tod 9-B, south offset most northerly completion Todd deep pool, flowed 784 bbls. 41-gravity pipe line oil natural 4 hours, Crinoidal pay 5620-5780 ft., total depth 5784 ft. Amerada et al's Todd 1-C, 3½ miles west production, proved dry in Ellenberger 6975-7143 ft., and plugged back to 6650 ft. to perforate Crinoidal, elev. 2430 ft.

North Texas

Montague County Wildcat Completing as Oil Producer

Montague County wildcat making producer from Bend after long delay in procuring pipe, and 2 confirmation tests on production in Clingingsmith pool. Jack County has promise of Bend strike. New pays loom for pools in Wilbarger and Archer counties.

Montague County: Walter Gant et al's Turner 1, NEc ET Section 59, 5½ miles northeast Bowie and ½-mile southeast of junked wildcat that indicated production, was returning oil and gas in swabbing down for test of conglomerate saturation 6223-38 ft in Bend, topped 6058 ft, with 7-in 6218 ft. Producer was indicated August 17 when drill-stem test yielded 1100 ft oil with gas blow, and operator had difficulty on delivery of pipe and tubing. In Clingingsmith pool, Sinclair Prairie's Lemon 1, south offset its 6119-31-ft flowing discovery, responded to treatment with 1500 gallons acid in Bend conglomerate and lime 5973-90 ft with flow 140 bbls oil in addition to the oil load in 2½ hours, gas flow rated 2,500,000 ft daily. Hole plugged back from 6680 ft with 7-in 5970 ft. Topped first Bend 5678 ft and lower marker 5944 ft. Company's McCall 1, west offset discovery, plugged back from Ellenberger 6888-6942 to 5980 ft, with 7-in 5900 ft, and filled 5000 ft with oil while bailing. Chapman-McFarlin et al's Fowler 1, 2½ miles east by north of Ringgold production, resumed drilling after drill-stem test at 5727-52 ft in Bend, topped 5566 ft, proved dry. Continental's Winder 1 and Benson Bros.' Riley 1, both wildcats, drilling at 5250 ft and 4620 ft, respectively.

Archer County: Phillips' Reilly-Pendry 1, SWc NW H&TC 13, Blk 4, projected Ordovician wildcat near west edge county, resumed drilling after formation tester yielded 540 ft oil- and gas-cut mud and 120 ft salt water from sandy lime 3167-73 ft in Canyon, topped 3154 ft. Shell's Coleman 4-A, south outpost for Scotland pool, drilling plugs from 4½-in 5752 ft on top Ellenberger, which showed broken oil saturation to 5850 ft. Pool produces from 4000-ft Strawn and 5100-ft Bend, but Coleman 4-A possibly adds new pays, as drill-stem test in Mississippian saturation 5259-5328 ft resulted in flow of oil. R. H. Hawn et al's Edwards-Texaco 1, east outpost, yielded 180 ft oil, 90 ft oil-cut mud and 180 ft salt water on drill-stem test 5224-87 ft in Bend, topped 5224 ft, involving sharp structure dip, and was drilling 5390 ft to explore the Mississippian.

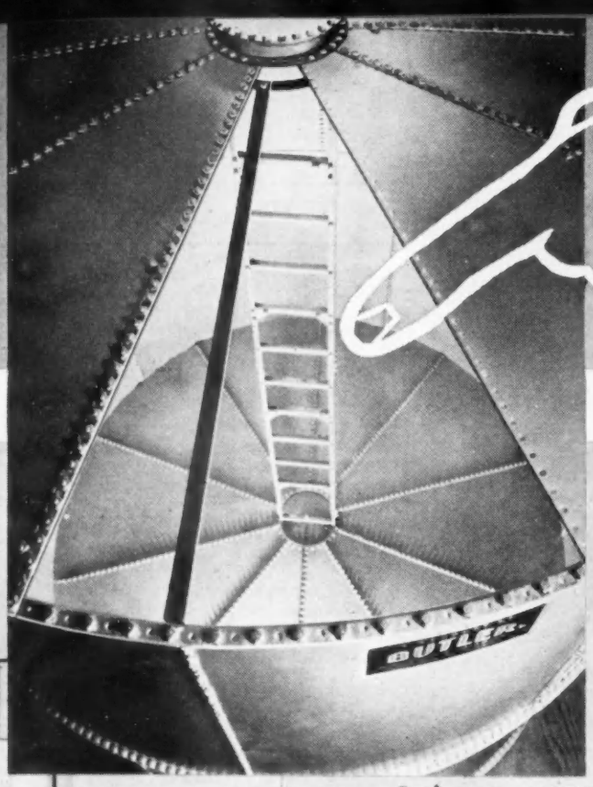
Clay County: Shell's Henderson 17-C, east of company's prolific Mississippian strike for the Antelope pool, swabbed salt water from perforations 6017-25 ft, with 4½-in on bottom at 6100 ft in Mississippian, topped 5939 ft, being about 300 ft low. Will reperforate oil stain and odor in lime below 6053 ft. Continental et al's Ross 5, eleventh Bend lime producer for Ross-Jolly pool, flowed 200 bbls 43-gr oil 3 hours following 8000-gallon acid treatment at 5479 ft, 6-in 5470 ft. Superior Oil Corp.'s Seigler-Shell 1, wildcat 4½ miles southeast Joy, proved dry when swabbed via perforations 5959-70 ft in Bend, topped 5766 ft, and to reperforate 10-ft section above before trying for production in Mississippian 6240-6455 ft, with 5½-in 6250 ft.

Throckmorton County: Helmerich & Payne and Phillips' Batchler 1, NW NW TE&L Sec 2119, east edge county wildcat, drilling 4290 ft, having failed respond to drill-stem test in saturation 4055-70 ft in Bend, topped 4053 ft.

Jack County: Taubert & McKee and Sinclair Prairie's Mary Hoefle 1, A. James Survey, 4 miles southeast Antelope, entered Bend 4794 ft, with saturation 4817-35 ft. Hole being conditioned after cavings caused pair incomplete drill-stem tests. L. T. Burns et al's Wright 1, near C SE NE Z. S. Brooks Survey, 5½ miles northwest above wildcat, passed up 3 promising oil-saturated zones in Strawn between 4360-4596 ft, drilling 4775 ft.

Wilbarger Ellenberger: Phillips' Waggoner-Bates 4, NE NW NE H&TC 43, Blk 4, southeast edge of Rock Crossing pool's 3100-ft Canyon production, drilling plugs from 5½-in on top Ellenberger 3804 ft. Drill-stem test 3804-45 ft yielded 100 ft oil and 100 ft oil-cut mud, possibly forerunner first Ordovician for area. Company's Waggoner 26-NN, mile east by south, completed July, 1938, flowing natural from detrital 3746-65 ft, but development held in abeyance. Magnolia's Waggoner-H&TC 34, SEc NW H&TC 15, Blk 13, is showing for third Ellenberger producer for west edge Electra field, having swabbed 31 bbls oil and 29 bbls water 15-hour test after acidizing perforations 2883-88 ft, total depth 2941 ft. Topped Ellenberger 2883 ft, considerably higher than tests to west.

South Electra Deep: Kemrow Co.'s Burnett 57-B, east offset Magnolia's Ellenberger discovery at 3627-35 ft, entered dolomite 3620 ft, level with field's single deep producer, and was drilling 3671 ft without shows.



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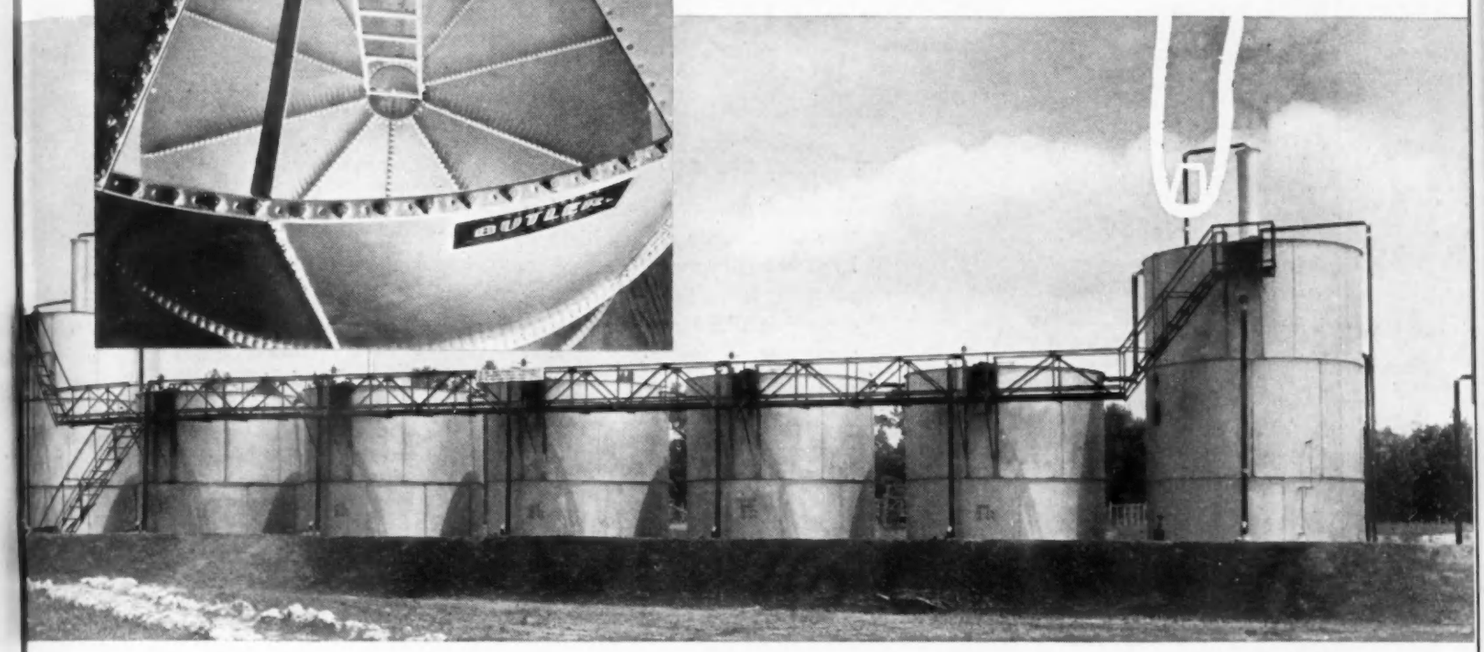

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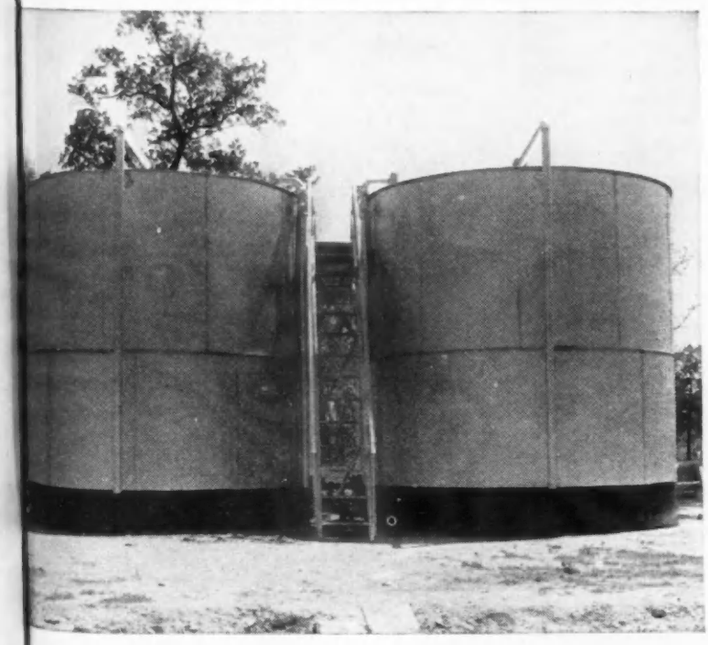

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East Texas

Three Wildcats Projected To Paluxy Near Commerce

Three projected wildcats near Commerce on Mexia-Talco fault trend. Second Paluxy test within East Texas field fails. Gas-distillate completions in Trinity pending in Limestone and Freestone Counties.

Wildcat Projects: Talco Asphalt & Refining Co. rigging Peck 1, E. Ewing Survey, Delta County, four miles northeast of Commerce, for Paluxy test. J. D. Parsons et al announced plans for test same horizon on W. F. England tract, on south edge Commerce townsite, Hunt County. Cable Tool Drilling Co.'s Wililams-Humble 1, Wm. Elam survey, nine miles southeast Greenville, contracted start Paluxy test prior November 2.

Limestone County: Bert Weekley et al's Barron 2-A, offsetting Trinity gas-distillate production in Barron pool, using acid through perforations opposite Pettit saturation with casing on bottom 5785 ft. Test of oil and gas show in Glen Rose proved disappointing.

Cayuga Deep: Amerada's Berk 14, first Trinity test for Freestone sector of field, cemented 5½-in. 7640 ft., 10 ft. off bottom, and will perforate Rodessa Glen Rose) saturation.

Freestone Wildcat: J. L. Collins & Co.'s Steward 1, 8 miles north Fairfield and northeast of a failure, scheduled to abandon in water at 4050 ft. in Woodbine, topped 3975 ft. Drill stem test 3973-95 ft. yielded estimated 1,500,000 ft. gas daily.

Lower Marine Projects: J. E. Farrell et al's Gilliam 1, western Limestone County, was drilling 3600 ft., with top Georgetown 1973 ft. Magnolia's Henry 1, Red River County and 1½ miles northwest Fulbright, resumed after landing 13-in. surface pipe 237 ft.

Henderson County: British-American's Young 1, Glen Rose strike made recently, continued to flow 4 bbls. fluid hourly, averaging 44 percent of 47-gravity oil, with about 750,000 ft. gas daily.

Chapel Hill: Sun's Sanders 1-B, west edge of field, flowed 208 bbls. 49.9-gravity oil initial 3/16-in. tubing choke, used acid in Pettit perforations 8207-16 ft. and 6241-61 ft., total depth 8367 ft. Sinclair Prairie starting Carithers 1, NEc 154-acre tract, Robt. Andrews Survey, north offset to gas-distillate producer.

Gregg County: C. R. Starnes et al's Money 40, Van Sickle Survey and west edge East Texas field, awaiting plugging orders at 5473 ft. after yielding small volume gas in Paluxy, topped 5155 ft. It is second Paluxy failure within the field, as Humble's Holland 37, Thos. Allen Survey, Gladewater sector, was carried to this zone at 5045-5363 ft., primarily for water disposal. However, the formation lacked porosity, and the well was plugged back for completion as Woodbine producer.

East Texas Field: Plugging of noncommercial pumpers to procure pipe and other equipment is accelerating the volume of abandonments. During first 15 days of September 35 wells were

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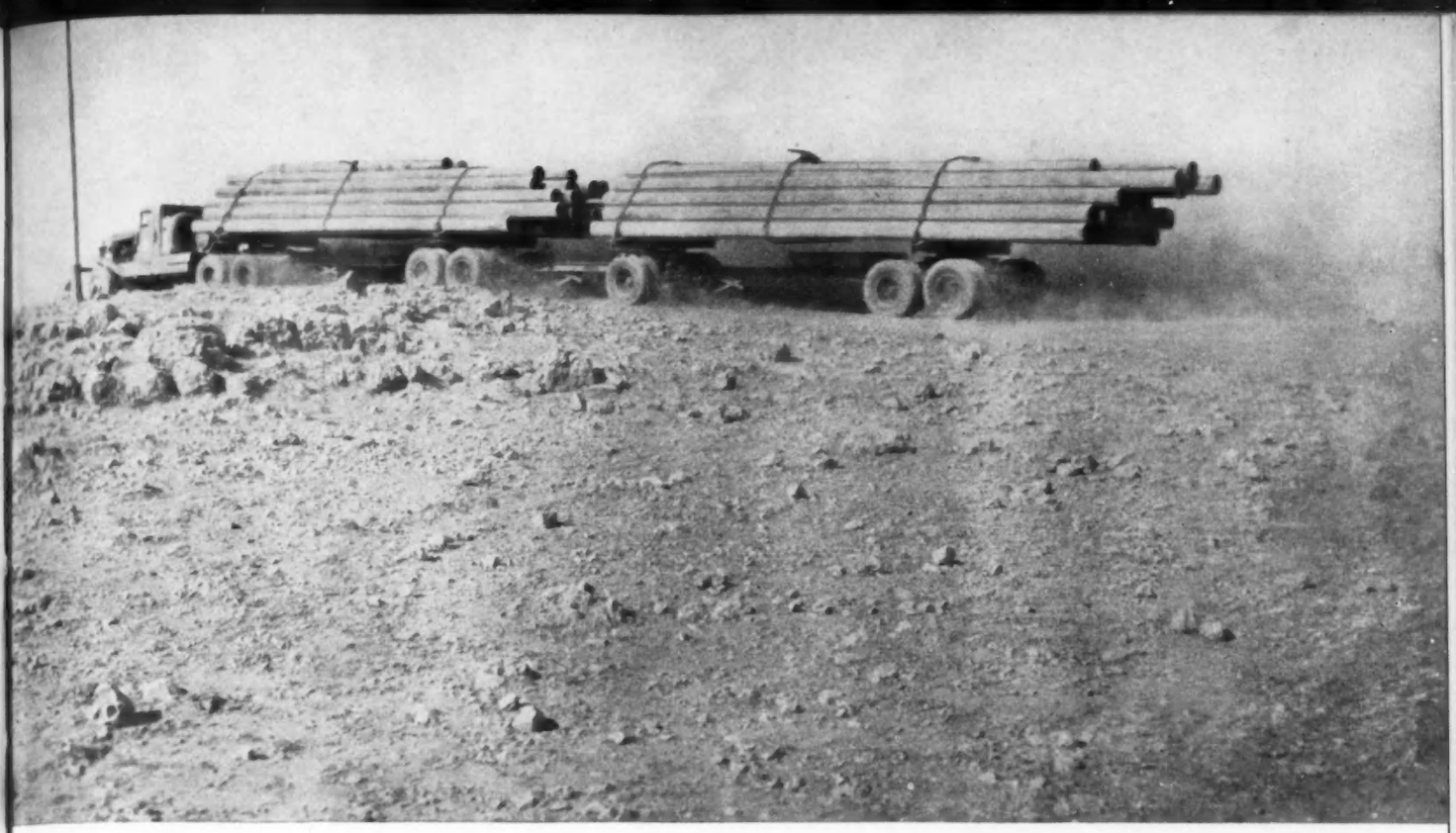

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plugged, and completions totalled 14. Field has 25,922 producing wells, having attained peak of 26,061 wells mid-August, 1939.

Grady Vaughn's Frost 1, J. Buckley Survey, Shelby County, wildcat awaits casing ufter logging 70 feet of porosity, 14 feet showing oil stains and odor in the lower Glen Rose (Rodessa) horizon. Total depth is 6748 feet. The test logged first porosity and show of gas in the Rodessa series at 6340 feet. Another soft section was logged between that depth and 6412 feet. In a core at 6514-28 feet 14 feet of porous lime showed with oil stains and oil odor, after a core from 6490-6501 feet had porous lime with a gasoline taste.

Southwest Texas

Storms Delay Work But Discoveries Keep Pace

Although a hurricane delayed developments along the lower Gulf Coast last week, new discoveries kept pace with the successful development of the past several months. Probably the most important was assurance of Georgetown limestone crude on the Chittim anticline.

Wilcox Trend: Shell's McManus 1, Brushy Creek pros, Lavaca County, perf above cas seat 10,998 ft, high gor, sq and prep to reperf, lost perf tool, rec and prep to reperf.

Rio Grande Valley: Sun's Yturria 1, Starr County, wc 7 mi n Samfordyce field, reperf 4232-33 ft, flowed 18 bbls 44.2 gr o, 12 bbls sw 7/64 ch 1205 tp, 1550 cp, gor 16,900-1.

LaSalle County: Quintana Pet. Co.'s Washburn 3-A, nw Washburn field, LaSalle County, did not recover all 5 in cas in hole, pb and perf in Carrizo comp as fresh water well. May rework later, td 11,042 ft.

Chittim Anticline: Wellington's Chittim 1, 2718 ft se nearest prod Chittim, Maverick County, dst 2970-3253 ft Georgetown li, rec 300 ft oily mud, 60 ft 31 gr o, 360 lbs wp, 1100 lbs bph flowing, ⅜ and ¼ ch 20 min, new show Georgetown 3427-47 ft may test. Well across fault from field.

Lower Gulf Coast: G. B. Buescher's Gillette 1, nw cor tr 6, 2 mi ne Luby field, Nueces County, comp 175 bpd 40 gr plo ⅛ ch 1220 tp, 1500 cp, perf 7308-12; sands 5850-90, dist; 6475-97, oil; 6952-68, oil; 7052-84, oil; 7308-15, oil; td 7315 ft. Opens field.

Atlantic Ref. Co. paid $1000 in cash and oil for 332 acres from Buescher et al and Joe Cosner et al in vicinity above well. Consideration ranged from $250 to $500 in cash, rest in oil, plus overriding royalty on some. Development of field likely on basis of 40 ac spacing but multiple wells to produce each oil sand.

W. R. Davis, Inc.'s Brownson 3-A on edge Garwood field, Colorado County, low on Cockfield, found little shows in Wilcox, abnd 10,424 ft.

Moore & Ahern's Burditt 1, tr 10, Woolfolk sub, 3½ mi nw LaWard, Jackson County, dr to 6513 ft, set 5½ in 5316 ft, prep to perf Marginulina sand 5203-18 ft. H. M. Christie's Pickering 1, 1½ mi sw above well, dr 4350 ft.

O. W. Killam's Rehme 1, ¾ mi nw new area w Alfred field, Jim Wells County, abnd 5232 ft.

Magnolia's Conkle 1, east flank LaGloria field, Jim Wells County, dr below 7350 ft, 7750 ft contract.

Sam E. Wilson's Rivers 1, 1½ mi w Agua Dulce field, perf in snd 5728-75 ft testing. Same operator's San Antonio Joint Stock Land Bank 1, farther west, logged same sand with some show and dr ahead.

Hiawatha's Rogers 1, ne side Stratton field, Nueces County, testing below 8000 ft in possible new snd.

Pan American's Smith 1, Midway, San Patricio County, perf 6262-66, flowed 182 bpd 42.3 gr o 5/32 ch 900 lbs tp, cas sealed, 1 percent bs and w gor 1280-1. Opens new sand. Moving rig location n for 8500-ft test.

Humble's McGill Bros. 81, Kelsey, Brooks County, comp 166 bpd 45 gr o 9/64 ch, 800 lbs tp, 1050 lbs cp, perf 4924-30, no w, gor low. Perf 4924-30, to open n snd in 200 ft below regular pay.

Barnsdall's Benitz 1, N. McFaddin, Victoria County, comp 85.41 bpd 38.9 gr plo 6/64 ch 870 tp, 1290 cp, 38.9 gr, gor 450-1 perf 5767-71 in new snd.

Standard of Texas' Hocker 1, 1 mi nw Palo Blanco gas wells, Brooks County, set 5½ 5513 ft, will perf in attempt to open crude production.

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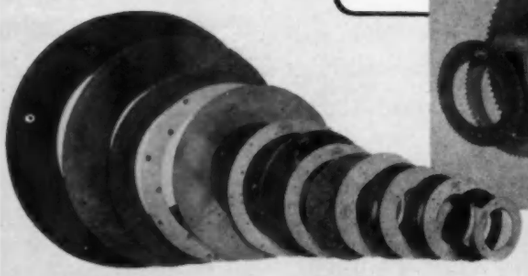
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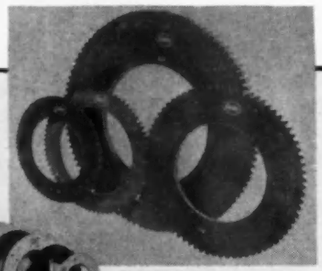
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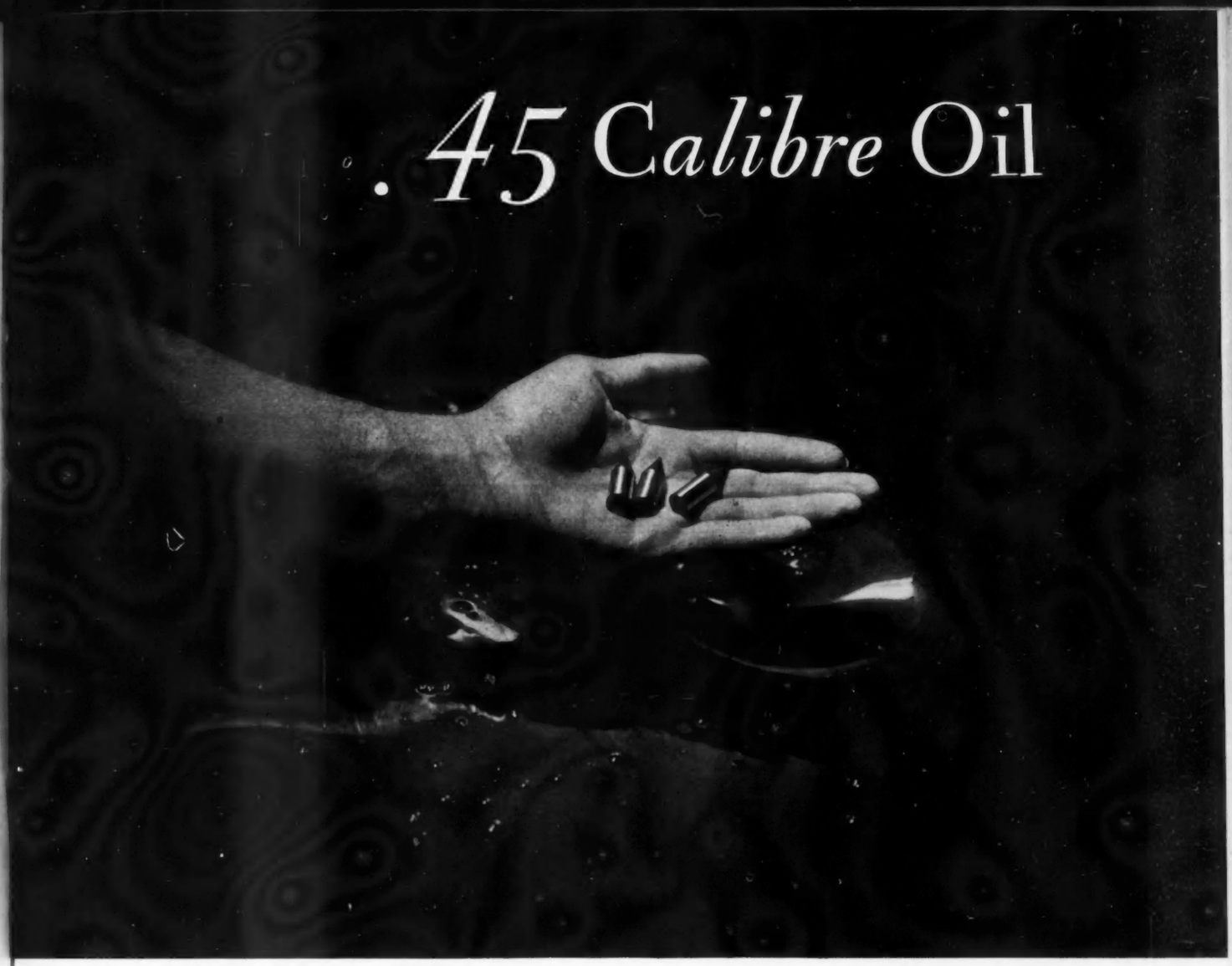

The story of drawing a bead on a billion barrels of crude

NATURE locked its precious store of "black gold" beneath countless tons of earth and defied man's ingenuity to release it. As oil fields were discovered, pioneer wells were drilled to exploit the richest oil deposits because these were the easiest ones to produce. In the mad scramble for greater oil production during the 'twenties, thousands of wells were hastily drilled. The thin, shallow, secondary zones were cased and consequently were sealed-off. Production from these secondary zones was lost until Lane-Wells engineers devised a gun, small enough to fit inside oil well casing, yet powerful enough to shoot bullets through as many as three strings of cemented casing and far out into the producing formation to open the flood gates of these "forgotten reserves."

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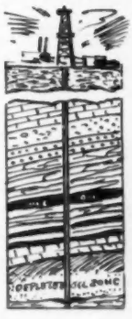
The Gun Perforator is one of Lane-Wells Technical Oil Field Services in daily use in every major oil producing field. The "Story of Lane-Wells" is available in Bulletin form. Write: Lane-Wells, Los Angeles.



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Texas Gulf Coast

Hurricane Causes Little Damage Besides Delay

The hurricane that roared through the upper Gulf Coast last week did little damage to oil fields with the exception of blowing down some derricks. Greatest loss was to pumping wells where, in many instances, the production cannot be made up.

Eight derricks, some wooden, were blown down in Barber's Hill field, 2 at Goose Creek, 11 at Manvel, 2 at Port Neches, 3 at Humble, 6 at Blue Ridge, 2 at South Houston, 1 at Withers. A drilling platform at Sabine Pass, Jefferson County, was partially wrecked. Several tanks at Turtle Bay, Chambers County, were damaged, particularly those that were empty.

Drilling operations on the coast came to a standstill September 22-23 during the height of the storm. As a result of the shutdown little, if any, field machinery was damaged. Numerous wildcats were delayed in resuming drilling due to high water around locations.

Hard hit were field communications. Oil companies were unable to contact field headquarters in many instances for several days. Power lines in some fields also were blown to the ground, interrupting production.

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Montgomery County Test Sets Coast Depth Record

Montgomery County Wilcox test sets upper Gulf Coast depth record; shallow Grimes County well indicates production; Fort Bend County wildcat opens gas field.

Montgomery County: Superior's McWhorter 1-B, Lake Creek area, has set depth record, drilling and coring below 12,508 ft in Wilcox. A "tight" operation, it cored regular sands and is exploring deeper horizons.

Atlantic's Foster 1-A, Fostoria area, is drilling near 10,800 ft after running electric log and sidewall samples at 10,503 ft, contract depth; is deep in Wilcox with details withheld.

Glenn H. McCarthy's Seyle 1, Magnolia prospect, watched as possible Wilcox field opener, resumed drilling 9760 ft after setting pipe at that depth. Production tests will be made in upper sands showing gas and distillate. Prospect old one with diversified ownerships; first deep test in area.

Grimes County: Oswego Oil Co.'s Bonney 1, Iola area, holds interest with sands in upper Wilcox showing. Wilcox topped 2758 ft with oil show reported 2760-67 ft, then sand and shale to 2800 ft; will set for test.

Walker County: Hogg Bros.' Smith 1, Black Creek prospect, reconditioned mud at 7200 ft and resumed drilling in Wilcox after losing returns at that depth. Southwest of Huntsville, Ferrell and Cox's Foster 1 is standing with casing due to be set to test Wilcox shows.

Austin County: Woodley Petroleum Co., Polcak 1, Wilcox test in northwest corner of county, will run electrical survey at 5400 ft for correlation since nearest well is 8 miles away. Top Cockfield picked at 2660 ft; projected 7500 ft, deep in Wilcox.

Chambers County: Dick Schwab's Ferrel 1, East Goose Creek area, is near projected 8000 ft. Lower Marginulina sands carried salt water. Discorbis 5643 ft, Het. 5940 ft, Frio 6425 ft; on downthrow side fault.

Fort Bend County: Walter L. Goldston's Coyle 1, Needville area, opened gas field in perforations 5176-80 ft in one of several gas sands in Marginulina-Frio section, tubing and casing pressures 1025 lbs.

Wharton County: Amerada's Wiggington 1, Blue Basin area, sw Withers fld, is spudding. It is on 320-ac tract in E. T. R. R. sur, 2½ mi se of Sinclair's Carlson 1 dry hole.

Louisiana Gulf Coast

LaFourche Test Reaches 12,792 Feet; To Go Deeper

LaFourche Parish wildcat sets depth record; Stanolind stakes 9500-ft test in Acadia Parish; Bayou Sale well near sand.

LaFourche Parish: Gulf's State 7PP, wildcat on Timbalier Bay prospect, shut down account high water 12,729 ft, deepest well in parish. Drilling to resume, no shows reported.

Acadia Parish: Stanolind's Tweedel 1, Lewisburg area, is new 9500-ft test, Sec. 77-7s-3e. Company rig will be used. Stanolind has approximately 5000 acres. Block shot with geophysics, well being

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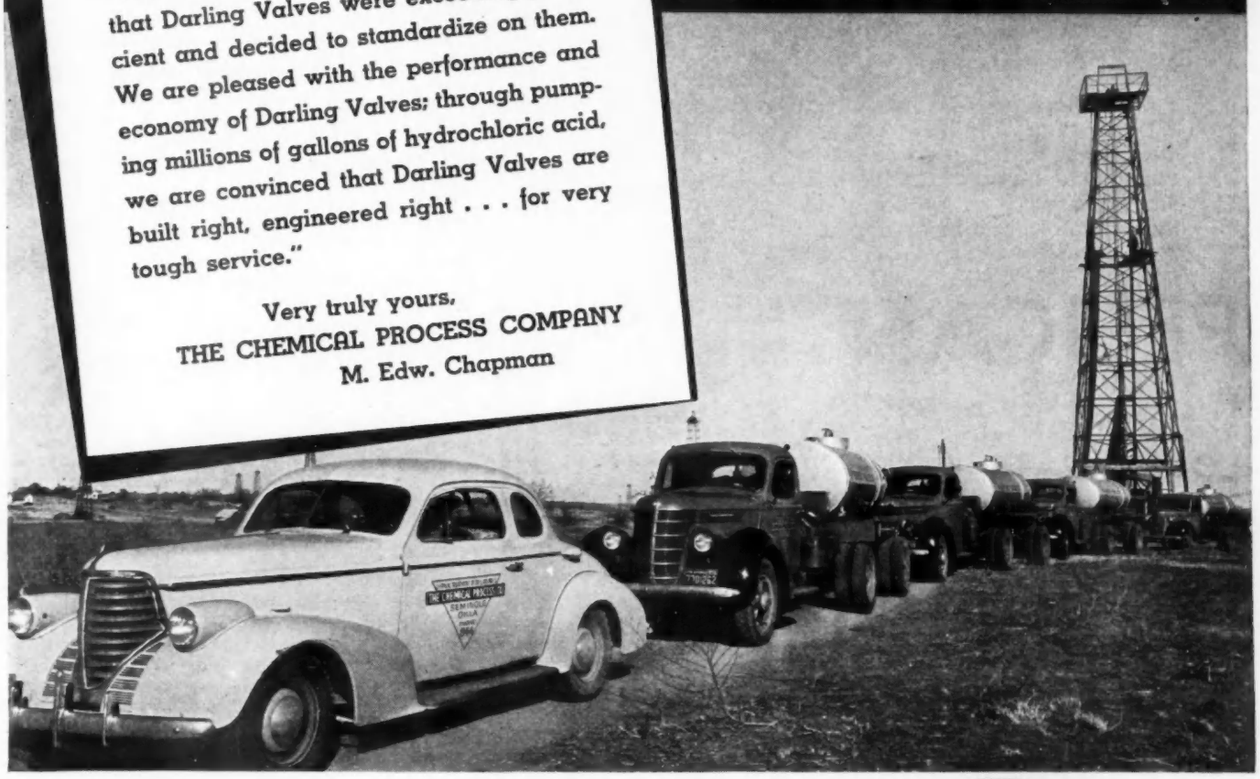

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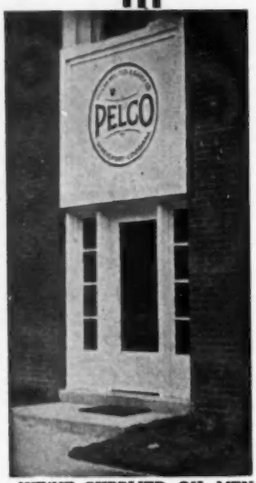

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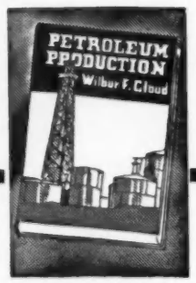

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in sw corner of block. Amerada and Magnolia own acreage in area.

St. Mary Parish: Humble's McAnelly 1, Bayou Sale area, near sand coring and drilling. Oil sand in discovery well logged 10,200-300 ft.

Iberville Parish: Humble's Schwing 1-B, wildcat south of abandoned discovery well in Bayou des Glaise area, coring and drilling 10,192 ft.

Although brunt of hurricane missed Louisiana coast, high winds and tides forced halt in coastal operations. Many wells are in lowlands and in bays which are affected by even a small change in weather.

North Louisiana

Drilling Spurt in New Area of Catahoula Parish

Drilling spurts in new Cypress Lake field, Catahoula Parish; new Caddo wildcat planned; DeSoto Parish wildcat started.

Catahoula Parish: Carter Oil Co. last week staked its fourth location in New Cypress Lake field, Highland Farms 1, C SE NW 12-6n-4e, in same section where same company's Louisiana Delta Hardwood 3, is taking sidewall cores at 5976 ft. and looking unpromising. Company is building roads to Tensas Delta G-1, NE SW 30-6n-5e, and digging pits for Tensas Delta E-1, NW NW 5-5n-4e, Catahoula Parish.

H. L. Hunt abandoned Goodpine F-21, C NW SW 9-10n-5e, Catahoula Parish, at 5045 ft. He is drilling at 7691 ft. in Louisiana Central A-2, C NW SE 9-9n-6e.

Caddo Parish: C. M. Worley and associates of Tulsa have assembled block around Section 16-16n-15w, Caddo Parish, for proposed 6000-ft. test.

Winn Parish: Carter Oil Co. placed on record a geophysical option on 60,274 acres of Urania Lumber Co. land in Winn, Caldwell and La Salle Parishes. In Winn and Caldwell Parishes, R. E. Anderson is leasing in townships 12 ad 13 north, ranges 1 and 2 east. Southern Carbon Co. squeezing off for another test at Vollie Howard 1, SW SE 13-14n-4e, Caldwell Parish, after three unfavorable tests in Wilcox.

De Soto Parish: E. L. Kistler is rigging for wildcat in De Soto Parish, H. M. Creighton 1, SW SW 29-12n-11w.

Arkansas

Commission Sets Space Rules for Two Fields

Arkansas Oil and Gas Commission sets space rule for two fields; wildcat location staked in Miller County.

Space Rules: Arkansas Oil and Gas Commission last week set space rules for the new Patton field in LaFayette County, six miles west of McKamie, where spacing was set at 40 acres; and the Travis Peak horizon of the Stephens field, Columbia County, where the space rule was set at 10 acres. The latter field produces from this horizon at 3400 feet, recently opened.

The "Patton" field was officially named by the commission in honor of

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"HAYSTELLITE" INSERTS—cast tungsten carbide in 13 standard shapes and sizes—extremely resistant to abrasion—generally applied by oxy-acetylene process with high strength steel rod as binder.

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John W. Patton, member of the commission from that county. The discovery well was recently completed by Tide Water Associated Oil Co. and Seaboard Oil Corp. at Moore 1, Section 29-17-24.

Miller County: Hunt Oil Company rigging for Miller County wildcat, Fouke 1, C NE SW 34-16-27.

Clara Driscoll Space Order Entered by Commission

The Texas Railroad Commission entered an order last week prescribing 20-acre proration units, with a 10-acre tolerance on the final well, for all wells drilled to a greater depth than 4000 feet in the Clara Driscoll field in Nueces County. Proration is fixed on an acreage and per-well basis, with 50 percent allocated on each factor. Ten-acre proration units are provided for wells drilled above 4000 feet.

Michigan

Reed City First Dry Hole Defines East Edge

First dry hole in 40 completions shows east edge of Reed City, Osceola County, producing closure. Two wildcats hold promise opening new districts.

Reed City: Ohio's State 1, C S½ NW NW 28-18n-10w, 1320 ft east of 3000-bbl potential well, showed 32-ft structure drop and Monroe dry at 3588½ ft. It was first outright dry hole in field where a 100,000-bbl potential has been established since May 30 and approximately 2600 acres proven by first 40 completions. All are producing from Monroe horizon although both the Traverse at 2800-2950 ft and Dundee at 3500 ft have shown from 50- to 500-bbl production. Both of these zones are being cased off with all completions in the lower horizon.

Allegan County: Clifford Perry's Shafer 1, NW SE NW 18-3n-12w, Hopkins Township, carried 250 ft oil at 1571 ft, 2 ft in Traverse, where it shut down for casing; three miles from closest Traverse pool.

Regal Dutch Petroleum Co. has abandoned attempts to clean up hole on Heasley 2, SE NW NE Section 21-4n-13w, Salem Township, first Trenton lime test in the pool. A fishing job developed at 3792 ft three months ago, after penetrating top section of objective, logged at 3725 ft. Company plans to plugback to 2935 ft, and complete in Monroe for gas. Initially when this zone was drilled well gauged 319,000 cu ft.

Roscommon County: Sun's Bauman 1, C N½ SW NE 29-24n-1w, Roscommon County wildcat, flowed 48 bbls oil by heads in 70 hrs through 3000 ft water at 4188 ft. Tubing will be run on packer to test.

Pure's State 1, Section 35-21n-3w, 1320 ft east of Roscommon discovery well, drilled Traverse, Dundee and Monroe zones dry. It will be junked at 4350 ft. Discovery is producing from 3442 ft.

Deep Test: Gulf's Bateson 1, Section 2-14n-4e, Bay County, produced 53 bbls distillate and 9 bbls water on a 17-hr tubing test from Salina at 7850 ft. Distillate test was made with an average bleed off of 2,000,000 gas per 24 hrs, and against 1275 lbs on tubing and 1650 lbs on casing. Previously on gas production tests through the casing well had flowed at average rate of 6,000,000 ft per 24 hrs, on 12 hr test against 1500 lbs casing back pressure. Company now intends to complete for distillate, which will be the first distillate completion in Michigan. Gas at least temporarily will be burned at well but may be sold later to Bay City industrial plants or Dow Chemical Company at Midland, 16 miles from well.

California

Raisin City Completion Better Than Field Average

Outpost project in new Raisin City area, Fresno County, is large producer; Kern County and Yolo County wildcats abandoned.

Fresno County: Completion of Shell Oil Company's Properties Inc., N1 28-18 western outpost in the Raisin City field flowing at an initial rate of 1056 barrels daily, 22.3-gravity oil, serves to emphasize the importance of this new area where original completion did not look too promising due to small section of productive sand. Bottomed at 5225 ft. in oil sand and gray sand, plugged at 5064 ft., 4 4ft. of perforated liner landed on top of plug, flow pressure registered 410 pounds on test. Well was beaned back to 90 barrels daily through a 9/64 bean, with tubing pressure of 1575 and casing at 1900 pounds.

Kern County: Richfield Oil Corp. has abandoned West Mountain View 1, Mountain View area, Sec. 16-30-28, after drilling and spot coring to 6655 ft. and failing to get any showings of importance.

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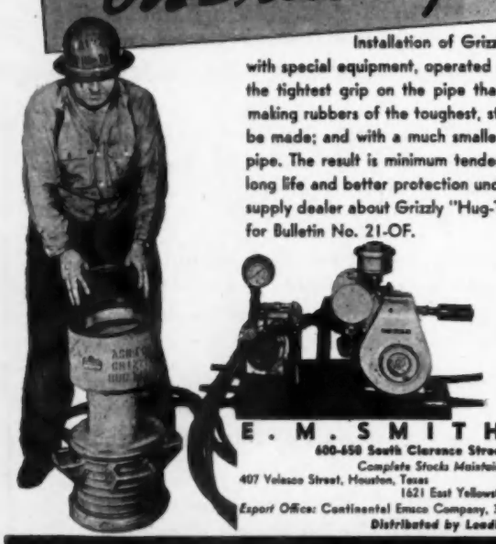
2¼" I.D. for use on 4½" drill pipe.



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Left: Part of field equipment used for installing Grizzly "Hug-Tite" Drill Pipe Protectors and Stabilizers at the well . . . as drill pipe is run in the hole, or while it is on the pipe rack. Saves time, labor and money, and eliminates many drilling troubles.

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UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
LaFayette County (Wildcat)—		
Tide Water Associated Oil Co., et al, Moore 1, 29-17-24	255	9503

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Fresno County (Coalinga Northeast)—		
Union, Cook 57-18B	250	8641
Fresno County (Raisin City Area)—		
Shell, Properties, Inc., 28-18	1056	5225
Kern County (Belridge)—		
Tide Water, No. 3	400	8500
Tide Water, No. 23	100	8510
Kern County (Coles Levee)—		
Richfield, KCL 1-G-4	¶26	5310
Kern County (Greeley)—		
Superior, Griffith 2	1692	11,480
Kern County (Kern Front)—		
General, Young 49	119	1958
Kern County (Mount Poso)—		
Shell, Security 31	90	2020
Texas, Alta Vedder 14	25	1675
Kern County (Penoche Creek)—		
Richfield, Stone-Bragg 1	*	5274
Kern County (Ten Sections)—		
Shell, KCL A-66-29	351	8235
Los Angeles County (Del Valle)—		
R. E. Havenstrite, Lincoln 8	..	6104
Los Angeles County (Long Beach)—		
Dumm Bros. Petroleum Corp., No. 12	15	5140
Los Angeles County (Newhall-Potrero)—		
Barnsdall, RSF 25	1000	7468
Los Angeles County (Redondo Area)—		
Jergins Oil Co., Dominguea 2-18	*	4110
Los Angeles County (Wilmington)—		
Continental Dev. Corp., LACFCD 19	195	3197
DeMarsh Oil Co., Phillips 2	..	3416
First National Finance Corp., Capital 1	130	3675
Long Reach Oil Development Co., W-29	255	4419
MacMillan Pet. Corp., Hayes 2	..	3625
Meredith, Owens & Beem, Wilmington 1	..	3705
O'Kane & Brain, Wildahl 1	..	3416
Ventura County (Ventura Avenue)—		
Tide Water, Hartman 11	493	8670
Yolo County (Dixon Area)—		
Amerada Petroleum Corp., F&C 1	*	7244
OLD WELL DEEPENED		
Fresno County (Kettleman North Dome)—		
Roberts S. Lytle, Felix 2 (otd 8646)	527	8846

*Failures; †Junked; ¶Million cu. ft. gas.

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Clark County—		
Geo. Haley, Young & Miller 1, sw sw nw nw 29-11n-14w	*	345
Clay County—		
Pure, Sol Smith "B" 14, c nw sw se 7-2n-8e	24	2667
Clark 13, c w½ se nw 8-2n-8e	160	3070
Holman "A" 4, c e½ se nw 15-2n-8e	45	3055
Gulf, Tolliver 1, nw se ne 26-4n-7e	40	2338
Carl Robinson, Tolliver 9, ne nw se 26-4n-7e	100	2334
Edwards County—		
Magnolia, Fewkes 3, ne ne sw sw 7-2s-11e (pb 3220)	190	3220
Fayette County—		
Carter, Ashburn 3, e½ sw ne 4-7n-3e	10	1588
Wright 15-D, c e½ se se 20-8n-3e	200	3088
Cummings 5-D, c e½ ne ne 21-8n-3e	200	3141
Presb. Church 4-D, c w½ se ne 21-8n-3e (pb 3191)	200	3197
Drees 8-D, c w½ nw nw 22-8n-3e (pb 3076)	200	3096
Weaber 5-D, c w½ nw nw 28-8n-3e	200	3036
Dunaway 5-D, c e½ ne se 29-8n-3e	200	3078
Buzzard 2-1, sw sw sw sw 35-9n-3e	Gas Input	1525
Franklin County—		
Benedum & Trees Oil, Liles 1, se nw se 34-7s-4e	166	3154
Gallatin County—		
Carter, Curry 3, nw ne nw 15-8s-10e	*	2106
Hamilton County—		
H. W. Bracey Co., Tennyson 1, se se se 28-3s-5e	273	3322
Shell, Porter 2-A, ne sw se 34-5s-6e	10	3061
Lockwood 1, sw nw nw 13-6s-5e	19	3209
Ritcheson et al 5, sw se ne 7-6s-7e	17	3006
Reward Oil, Anderson 1, sw sw sw 12-6s-5e	1070	3193
Kewanee Oil, Flannigan 1, ne sw ne 14-6s-5e	559	3173
Kingwood, Dodd 6, ne se nw 6-6s-7e	200	3014
Pure Oil, Fairweather 3, nw nw sw 7-6s-7e	618	3045
Cuppy 14, se ne nw 7-6s-7e	330	2995
Jasper County—		
Pure Oil, Musgrove 2, c e½ nw se 20-5n-10e	37	2825
Elliott 1, c w½ sw sw 29-5n-10e	286	2870
Delzell 2, w½ ne se 30-5n-10e	*	2850
Bergbower "S" 1, sw sw se 5-6n-10e	726	2785

Company, Well and Location	Init. Prod. Bbls.	Depth
Jefferson County—		
Kingwood, Bk. of Woodlawn 7, sw se nw 35-2s-1e	300	1968
E. M. Self, Filbreth 2, se nw nw sw 35-2s-1e	420	1992
Zinke 2, sw nw sw 35-2s-1e	250	1983
Shell, Burkhardt 3, nw sw ne 35-2s-1e	175	1991
Magnolia, Eubanks 5, se se se 35-2s-1e	636	1981
Shirley 5, nw ne se 35-2s-1e	648	1977
Shirley 6, se ne se 35-2s-1e	792	1980
Shirley 8, nw se ne 35-2s-1e	424	1993
E. J. Ruwaldt et al, Winesburgh 2, ne sw se 35-2s-1e	610	1948
Winesburgh 4, se sw se 35-2s-1e	580	1944
Marion County—		
Shell, Davidson 8-A, se se ne 34-4n-1e	50	1471
Morgan County—		
Magnolia, Keplinger 1, sw sw se 28-13n-8w	*	1765
Richland County—		
Nelson Development, Clodfelter 1, c s½ sw ne 29-2n-14w	*	3202
Sinclair-Wyoming, Clodfelter 1, n½ ne sw 29-2n-14w	1968	3131
Wabash County—		
W. W. Gray, Fee "A" 15, nw sw se nw 14-3s-14w	200	2550
Olds & McNeil, Riverside Park 4, nw nw se 21-1s-12w	100	1990
1st Nat. Pet. Trust Co., Samuels "B" 1, Lot 152, 21-1s-12w	75	2065
W. Balor, Goddart 1, Lot 174, 21-1s-12w	240	1485
Friend 2, Lot 156, 21-1s-12w	170	1489
Washington County—		
C. V. Richardson, Kasten 1, sw sw sw 27-1n-2w	*	1611
Wayne County—		
Pioneer Drlg. et al, Williamson 1, c s½ sw ne 22-1n-6e	1200	3187
Curtis & Brown, Watson 1, s½ sw nw 26-1n-6e	1728	3134
Texas, Watson 3, c s½ sw sw 26-1n-6e	520	3111
Leathers 7, c s½ sw nw 27-1n-6e	900	3091
Wiser Oil, Matchett 2, c s½ se ne 27-1n-6e	2297	3126
Hilliard 4, n½ ne sw 27-1n-6e	415	3103
Watson 6, s½ ne ne 34-1n-6e	1836	3119
United Prod. Co., Matchett 3, c s½ nw se 27-1n-6e	200	3070
Matchett 4, n½ nw se 27-1n-6e	1584	3073
Schell 4, s½ se ne 34-1n-6e	2138	3125
Carlens 1, s½ sw ne 34-1n-6e	125	3150
Carlens 2, n½ nw se 34-1n-6e	125	3162

[Continued on page 86]

Summary of Drilling Operations in the United States, Week Ended September 27, 1941

	WELLS COMPLETED								*PERMITS FOR NEW WELLS				
		New Wells Drilled for Oil and Gas											
	Total for Week	Oil Wells	Gas Wells	Failures	†Miscellaneous	Initial Production	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama	.....	.....	.....	.....	.....	.....	2	6	.....	.....	.....	.....	.....
Arkansas	1	1	.....	.....	.....	255	123	142	5	14	137	115	153
California	25	21	1	3	.....	6,698	895	854	24	116	884	794	1,042
Colorado	.....	.....	.....	.....	.....	.....	14	7	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Illinois	93	81	.....	6	6	37,763	2,918	3,019	98	429	3,541	3,473	4,532
Indiana	10	6	1	2	1	381	400	357	13	39‡	159	.....	.....
Iowa	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....
Kansas	46	30	.....	14	2	43,625	1,672	1,505	34	184	1,737	1,534	2,048
Kentucky	15	6	.....	9	.....	75	245	260	14	40‡	112	.....	.....
Louisiana	19	13	.....	6	.....	* 3,484	1,115	1,256	35	141	1,311	1,248	1,658
Michigan	21	10	3	8	.....	15,062	614	924	25	66	655	853	1,093
Mississippi	.....	.....	.....	.....	.....	.....	139	145	.....	.....	.....	.....	.....
Missouri*	.....	.....	.....	.....	.....	.....	36	16	.....	.....	9	12	26
Montana	.....	.....	.....	.....	.....	.....	144	144	.....	.....	.....	.....	.....
Nebraska*	2	1	.....	.....	1	100	66	12	3	11	82	18	69
New Mexico	10	6	.....	4	.....	2,026	278	512	12	24	307	456	559
New York	30	18	.....	.....	12	155	723	771	.....	.....	.....	.....	.....
Ohio	46	8	23	9	6	895	1,283	747	.....	.....	.....	.....	.....
Oklahoma	29	16	3	6	4	3,438	1,630	1,610	54	220	1,706	1,373	1,888
Pennsylvania	64	42	6	5	11	53	2,708	2,782	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	7	8	.....	.....	.....	.....	.....
Texas	221	158	4	53	6	85,932	7,731	7,625	370	1,040	9,188	8,514	11,170
Utah	.....	.....	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....
West Virginia	21	2	15	3	1	7	526	424	.....	.....	.....	605	782
Wyoming	.....	.....	.....	.....	.....	.....	100	116	.....	.....	163	1	1
Total this week	653	419	56	128	50	199,949	23,377	23,246	687	2,324	19,991	18,996	25,021
Total last week	731	486	63	154	28	174,079	22,625	22,648	688	1,637	19,304	18,488	25,021
Total this year	23,278	14,577	1,789	5,094	1,818	6,507,312	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
‡ No data available before June 14, 1941.
† Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

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United States Well Completions—*Continued*

ILLINOIS—Continued

Company, Well and Location	Init. Prod. Bbls.	Depth
Shell, McReynolds 1, n½ ne ne 33-1n-6e	3301	3115
Turner Comm. 3, n½ nw nw 34-1n-6e	3067	3073
Illinois Prod. Corp., Shreve 2, s½ sw nw 34-1n-6e	1000	3118
Pure Oil, Barth-Carson Cons. 1, e½ se se 2-1n-7e	255	3035
White County—		
H. H. Weinert, Inc., Miller et al 6, nw se ne 30-3s-8e	200	3230
Yingling & Schuler, Smith 2, nw se sw 5-4s-14w (pb 3020)	15	3051
Yingling, Hayes et al, Shephard 1, ne ne ne 5-4s-10e	74	3187
Bell Bros., Skiles 8, sw ne sw 16-4s-14w	44	2849
Superior, Fitton 25, nw ne ne 28-4s-14w	200	2860
Ford et al "D" 13, sw ne nw 34-4s-14w	80	2836
Sun & Ellis, Jacobs "B" 4, s½ sw nw sw 28-4s-14w	103	2723
Jacobs "B" 6, sw se nw 28-4s-14w	35	2851
Jacobs "B" 10, s½ s½ n½ Sec. 28-4s-14w	250	2731
Sun, Greathouse 34, ne nw se 33-4s-14w	250	2731
W. F. Catlett, Calvert 1, se se nw 32-5s-10e (pb 2188)	90	3148
Sinclair-Wyoming, Rudolph 14, nw se sw 12-6s-9e	116	2275
Cherry & Kidd, Karch 1-B, se sw se 13-6s-10e	64	2865
Karch 2-A, nw ne ne 24-6s-10e	12	3025
Karch 6, nw nw ne 24-6s-10e	88	2022
Karch 1-A, sw nw ne 24-6s-10e	50	2026
Skelly, Karch 2, ne se se 13-6s-10e	201	2033
Magnolia, Sisson-Higgins 6, ne sw se 24-6s-10e	95	2269
Carter Oil, Hamilton 3, w½ se sw ne 11-7s-8e	251	2173
Fuller 3, nw se nw 11-7s-8e	250	2916
Cities Service, Mount 1, c s½ se ne 11-7s-8e	184	2748
Hiawatha Oil, Vail 4, nw nw se 19-7s-11e	12	2851
OLD WELLS DEEPENED		
Marion County—		
Texas, Maxwell "A" 4, nw se ne 31-2n-2e (otd 3350)	75	4584
Wayne County—		
Olson Oil, Porter 1, w½ nw se 36-1n-6e (otd 3207)	508	3240
White County—		
Sinclair, Donald 5, se se sw 21-4s-14w (otd 2860)	75	2963
Phillips, Garr 3, sw nw sw 36-4s-10e	25	2994
Stuckenhoff, Erwin et al 1, ne se nw 26-6s-8e (otd 3079)	*	3192

Indiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Decatur County—		
Hoosier Pub. Util., I&B Wells 229, se nw sw 11-9n-9e	¶165	887
Gibson County—		
Hall Edwards, Rec., Maier 39, sw sw se 11-3s-14w	49	2565
Continental Oil, Bozeman Land 47, nw se sw 23-3s-14w	115	2852
Posey County—		
Continental Oil, Kleiderer 13, nw sw ne 33-3s-14w	90	2895
Cherry & Kidd, Ford 1, se sw nw 34-4s-13w	22	3110
Central States Oil, Seifert "C" 1, ne nw nw 30-6s-12w	70	1103
Spencer County—		
E. J. Goldschmidt, Yaeger 1, nw se se 6-7s-7w	*	1118
Sullivan County—		
W. J. Reynolds et al, Hyde 1, sw ne ne 9-8n-10w	*	2600
Vanderburg County—		
K. R. Bixby, Trs., Glaser 6, sw nw 31-5s-11w	35	1220
OLD WELL DEEPENED		
Daviess County—		
Hartman et al, Shite 1, sw nw sw 22-2n-7w (otd 1540)	*	2751

Kentucky

Company, Well and Location	Init. Prod. Bbls.	Depth
Butler County—		
A. M. Collins, Schrum 1 (4) 13-I-32	*	1186
Daviess County—		
W. E. Hupp, Baird 1, 15-N-29	*	1840
H. C. Farmer et al, lFtts 2, 19-N-29	5	17519
C. E. Daugherty, Ashley 2, 16-N-31	10	735
Paulamous et al, Thompson 1, 10-O-32	*	745
Hancock County—		
Leeper Oil, Rowland 1, 3-O-33	5	490
O. D. Vickers, Payne 1 (8) 8-O-33	*	473
Frank Randall et al, Burdette 1, 12-O-33	25	620
F. Randall et al, Burdette 1, 12-O-33	25	660
Logan County—		
H. A. Henry, Sneed 3, 16-G-31	*	755
McLean County—		
Rex Pyramid, Barthimus 1 (2) 25-M-29	*	1817
Ohio County—		
R. R. Hart, Crowley 7, 8-N-33	5	497
H. H. Vickers, Lane 4, 1-N-34	*	324
Union County—		
A. E. Elliott et al, Withers 1, 21-N-34	*	653

Kansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton County—		
Black-Marshall, Krier 2, c e½ sw nw 18-16s-11w	1851	3307
Vickers, Dolechek 1, nw ne sw 22-16s-12w	282	3379
Cities Service, Hogan 3, c w½ ne nw 11-17s-11w	3000	3361
C. E. Ash et al, Scheufler 1, c e½ nw nw 18-20s-11w	3000	3325
Shell, Kowalsky 4, ne nw se 18-20s-11w	189	3333
Butler County—		
Plymate & Bornholdt, Falk 1, sw sw ne 14-29s-3e	*	2800
Murfin et al, Vanfill 1, sw sw se 18-29s-4e	*	500
Cowley County—		
Phillips Pet., Lena 1, se se se 17-32s-5e	290	3068
W. M. McKnab, Shields 1, se nw se 19-32s-6e	*	2271
Ellis County—		
Dickey, Carmichael "B" 4, c e½ ne ne 18-11s-17w	3000	3358
Cities Service, Colahan "C" 5, sw sw se 24-11s-17w	3000	3383
Collahan "C" 6, c w½ se se 24-11s-17w	3000	3383
Falcon-Seaboard, Walters 1, c w½ nw nw 18-12s-17w	*	3735
Darby, Dreiling 1, ne se se nw 28-13s-17w (pb 3328)	352	3626
Ellsworth County—		
Continental et al, Buehler 7, c ne 33-17s-8w	3000	3219
Greenwood County—		
Aikman & Braden, Ensley 1, ne se sw se 22-22s-13e	10	1833
J. Henderson, Imthurn 1, nw ne ne 4-23s-13e	*	1815
Smith & Polhamus, Marshall 16, ne sw ne sw 34-24s-9e	10	2340
Weideman et al, Edgar "A" 1, nw ne ne se 35-27s-8e	*	2796
Winkleman & Abels, Hillard 1, sw ne ne nw 27-27s-11e	*	1300
P. M. Merridith et al, Baker 1, 8-28s-11e	*	1540
Marion County—		
Ring-Mac, Schick 8, ne nw nw 33-17s-4e	658	2419
Phillips County—		
Barnett Drlg., Ray 1, 32-5s-20w	3000	3601
Cities Service, Nichols 2, ne nw sw 33-5s-20w	673	3582
Pratt County—		
Skelly, Krebiel "A" 7, c s½ n½ ne 25-27s-11w	392	3480
Rice County—		
Continental, Meyer 10, se ne sw 30-18s-7w	130	3217
Johnson 1, sw nw ne 28-20s-6w	*	3434
Aladdin, Gray 1, c e½ ne se 35-18s 8w	*	3382
McPherson Drlg., Keller 1, sw sw se 5-19s-9w	*	3338
Cramm "D" 3, c w l nw se sw 15-19s-9w	408	3169
Gulf, Robbins 2, c n½ ne sw 8-19s-9w	1693	3249
Phillips Pet., Kate 1, c e½ se nw 18-19s-9w	133	3276
H. B. Garden et al, Hauschild "B" 2, sw se ne 22-21s-7w	18	3448
Rooks County—		
Consumers Co-op, McClay 1, c e½ sw sw 12-9s-17w (pb 3250)	215	3280
Russell County—		
Central Pet., Foster "B" 15, c e½ ne nw 3-14s-15w	416	3312
Phil-Han, Ney 1, nw sw sw 2-15s-12w	*	3213
Cities Service, Schartz 3, c n½ nw ne 5-15s-12w	3155	3232
Rogg "D" 4, c w½ nw ne 9-15s 13w	1573	3060
Luther Mackall, Henning 1, se se nw 27-15s-12w	*	3186
Wolf Creek, Blehm 1, c s½ nw se 10-15s-15w	451	3275
Sedgwick County—		
W. S. Fees et al, Bartholomew 2, c n½ ne sw 30-27s-4w	*	4133
Stafford County—		
Stanolind, Kirkpatrick 5, c w½ nw nw 15-24s-11w	2514	3830
Nagel 2, c w½ ne sw 3-24s-15w	3000	4126
Dasa Oil, McComb 2, c s½ ne ne 22-24s-11w	1030	3818
OLD WELLS DEEPENED		
Russell County—		
Central Pet., Boxberger 1, ne ne ne 35-15s-15w (otd 3151)	192	3223
Stafford County—		
Stanolind, Hayes 4, nw sw se 11-24s-11w (otd 3761)	3000	3801

North Louisiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Catahoula Parish (Wildcat)—		
H. L. Hunt, Goodpine F-21, 9-10n-5e	*	5045
LaSalle Parish (Olla)—		
Placid Oil Co., Louisiana Central 108, 19-10n-3e	90	2202
Louisiana Centrol 111, 11-9n-2e	105	2356
Claiborne Parish (Homer)—		
Carter, Lanston-Palmer 23, 19-21n-7w	240	1295

South Louisiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Acadia Parish (Jennings)—		
D. D. Feldman, McFarlain 9	740	7290
Gulf, Arnaudet 43	171	9837
Shell, Conover-Community 17	503	8593
Calcasieu Parish (English Bayou)—		
Union Sulphur, Texas Co. 1	250	7107
Calcasieu Parish (Wildcat)—		
Stanolind, Locke Moore 1	*	8659
Cameron Parish (Chalkley)—		
Humble, School Board 10	264	8936
Evangeline Parish (Ville Platte)—		
Continental, Evangeline Tr. 1	229	10209
Fontenot-St. Landry 2	252	10190
B. G. Fontenot Tr. 2	135	10169
Tate 10	225	10212
Oil Incomes, Jules Feret 1	*	10320
LaFourche Parish (Golden Meadow)—		
Texas Co., LLE-Golden Meadow 22	280	10,450
St. Helena Parish (Wildcat)—		
Humble, Great Southern 1-C	*	8333
St. Mary Parish (Wildcat—Bayou Sale)—		
Lisbon-Iberia, Leopard Bayou 1	*	10112
Terrebonne Parish (Dog Lake)—		
Texas Co., Dog Lake 200-12	*	7166

Michigan

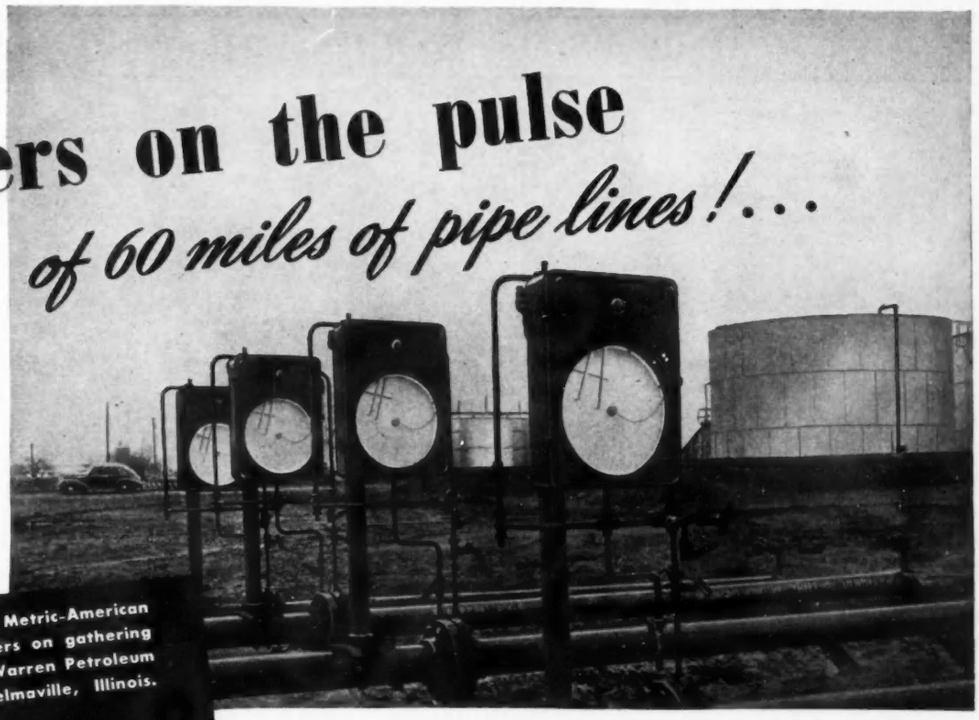
Company, Well and Location	Init. Prod. Bbls.	Depth
Allengan Conuty—		
Prather & Gooch, Schra 1, sw nw sw 35-4n-14w	*	1548
Rayburn & Major, Kerr 3, ne ne ne 22-19n-3e	2000	2865
Isabella County—		
W. E. Ross, Nelson 1, sw se nw 19-14n-5w	¶4½	1365
Belvidere Oil Co., Riggle 1, nw sw sw 21-13n-5w	¶1	1317
Mecosta County—		
C. L. Maguire, Wood 1, c s½ sw se 27-16n-7w	*	3796
Missaukee County—		
Taggart Bros., Pollington 1, c sw 15-21n-7w	¶8½	1422
Montcalm County—		
Belvidere Oil Co., Hillman 2, nw ne ne 18-12n-7w	*	1318
Sun, Crawford 1, ne ne se 13-11n-8w	*	3410
Osceola County—		
Ohio, State 1, c s½ nw nw 28-18n-10w	*	3590
Gordon & Bolger, State G 2, c n½ ne ne 29-18n-10w	3000	3530
Pure, Gingrich 2, c n½ se sw 30-18n-10w	1800	3629
Weber Oil Co., Stedman 2, c s½ ne ne 30-18n-10w	2000	3615
Gulf, Campbell 2, c n½ sw sw 19-18n-10w	362	3623
Lindner 1, c s½ se se 19-18n-10w	2580	3642
Lomp 1, c s½ nw nw 32-18n-10w	3160	3623
Roscommon County—		
Pure, State 1, c s½ sw sw 35-21n-3w	*	4350
Van Buren County—		
Fortney & Broughton, Truax 1, ne nw ne 11-1s-14w	90	1354
R. D. Malcolm, Allen 1, nw sw nw 12-1s-14w	60	1302
Fisher-McCall, Maier 7, sw sw ne 14-1s-14w	10	1281
F. E. Stocking, Lewis 1, se sw ne 14-1s-15w	*	1182
Earl Hartman, Fulton 1, sw nw ne 28-1n-13w	*	1360

New Mexico

Company, Well and Location	Init. Prod. Bbls.	Depth
De Baca County (Wildcat)—		
Compton Oil Co., Overton 2, 1-1n-20e	*	1015
Eddy County (Wildcat)—		
Flynn-Welch & Yates, Parcell 1, sw ne nw 34-19s-29e	*	2522
Eddy County—		
Nash-Windfohr-Brown, Jackson 2-B, cn½ se ne 24-17s-30e	300	3448
Ployhar & McNutt, State 1, nw se ne 30-17s-28e	*	578
Premier Oil Co., Maddren-Beeson 7-B, nw se se 27-17s-30e	179	3254
Sallee & Yates, State 4, se nw ne 2-18s-29e	672	2653
Stroup & Yates, Travis 3, ne nw nw 17-18s-29e	250	2462
Tompkins & Shankle, State Featerstone 1, sec sw 24-17s-28e	*	965
Lea County (Maljamar)—		
Southern Union Prod. Co., Pearsall 1-B, c ne nw 34-17s-32e	350	4171
Lea County (Mattix)—		
Skelly, Toby 2, c se sw 7-24s-37e	275	3630

fingers on the pulse

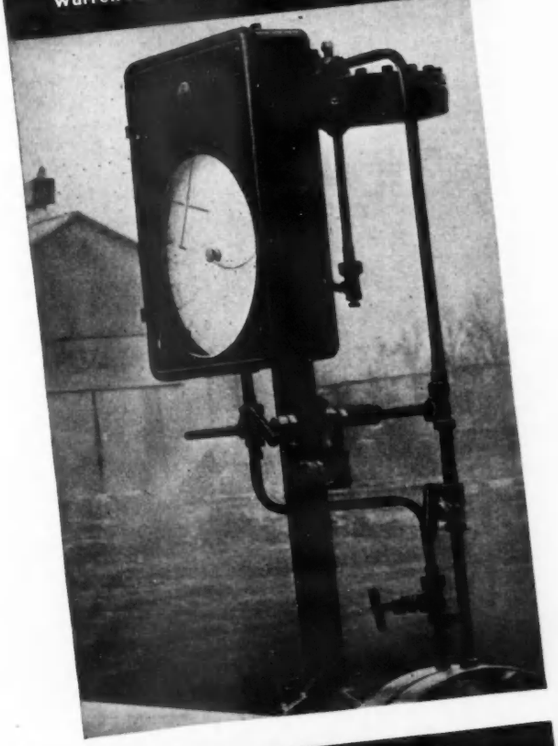
of 60 miles of pipe lines!...



Central meter setting of Metric-American Recording Orifice Meters on gathering system of gas at the Warren Petroleum Corporation plant, Selmaville, Illinois.

•

Typical gas field line application of Metric-American Recording Orifice Meter, at Warren Petroleum natural gasoline plant.



Out in the famous Salem Oil Field, the Warren Petroleum Corporation is demonstrating to the industry new wrinkles in the recovery of iso-butane and other products . . . in big-scale operations.

▷ Scores of METRIC-AMERICAN Orifice Meters of the "Westcott" Recording type—installed on field and gathering pipe-lines — accurately meter the vast flow from more than 700 wells . . . some 20,000,000 cubic feet of gas delivered daily to Warren's modern new natural gasoline plant.

▷ Accuracy is a prime requisite — in the orifices, and in instrument assembly. "Westcott" dependably supplies this accuracy . . . through design simplification, exclusive features in sensitive operating mechanism, and provision for easy low-cost maintenance.

▷ There's considerable satisfaction in knowing what AMERICAN measurement engineering today is contributing to the efficiency of field operations which yearly set new standards. May we tell you the story in detail if you do not have it?

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AMERICAN METER COMPANY

INCORPORATED ESTABLISHED 1836

United States Well Completions—*Continued*

Nebraska

Richardson County—
J. E. Palensky, Kalous 2, 230 ft w of sw sw se 5-2n-13e ..... * 1598
OLD WELL DEEPENED
Richardson County—
Midland Oil, Towle 1, ne nw nw 29-1n-16e (otd 2365) ..... * 2461

New York

Allegany County—
Bradley Prod. Corp., Bascom farm, Alma 12 1379
Reynolds & Reeland, Cowles farm, Bolivar 7 1069
B. & B. Oil Co., Curtis farm, Genesee 16 1438
South Bolivar Oil Co., McKelvey farm, Bolivar 7 1372
Sawyer & Williams, Torrence farm, Bolivar 6 1346
R. B. Moore No. 6, Thomas farm, Bolivar 6 1544
C. H. Christman & Son, Underwood farm, Scio 9 1377
Helen Randall, Reid farm, Alma .. 15 1549
Bradley Prod. Corp., Duke farm, Alma 6 1549
The Otsquago Oil Corp., Pike farm, Alma 7 1480
Albert Oil Co., Coats farm, Alma .. 6 1338
Harder & Mitchell et al, Bradley farm, Bolivar 8 1370
McEbenwood Oil Co., Dean farm, Andover 10 1370
South Hill Oil Co., Harrington farm, Willing 6 1369
Carl Oil Co. No. 5, Harris farm, Wardy 6 874
Forest Oil Co., Lester farm, Wirt .. 10 1360
Shaner & Dermitt, Swarthout farm, Bolivar 12 1376
Otto Oil Co., Bartlett farm, Bolivar 6 1376
Water Intake Wells—
Pure Pen Pet. Corp., Christman farm, Bolivar 1439
Messer Oil Co., Miles farm, Bolivar .. 1517
Brothers Oil Co., Crandall farm, Bolivar 1352
C. H. Christman & Son, Underwood farm, Scio 1342
Otsquago Oil Corp., Pike farm, Alma 1521
Bradley Prod. Corp., Duke farm, Alma 1522
O. D. Underwood et al, McDivitt farm, Bolivar 1326
Marsh Oil Co., Fay farm, Bolivar .. 1459
Coats & Gleason Updyke farm, Andover 1362
L. H. Thornton et al, Smith farm, Willing 1318
H. W. Patterson et al, Browning farm, Scio 864
Bliven Hill Oil Co., Norton-McEwin farm, Scio 966

Ohio

Ashland County—
Stewart et al, McCrory 1 ..... * 2778
Ohio Fuel, Sells 2 .....¶0.25 2986
Wittmer Co., Chandler 1 ..... * 2856
Athens County—
A. D. Townsend, Fee 2 .....¶0.10 1775
Mathews Oil, Parsons 4 ..... * 1351
Bern Oil & Gas, Kenny 1 .....¶0.72 916
Cuyahoga County—
Benedum Trees, Franz 1 .....¶0.73 1886
Gallia County—
C. A. Cody, Groover 1 .....¶0.20 1788
Guernsey County—
Frank Stranges, Spear 1 ..... * 2062
Hocking County—
Preston, Sunday Creek Coal Co., 200.¶0.5 3449
Holmes County—
Ohio Fuel, Fites 1,.....¶1.1 3199
Knox County—
H. E. Perkins, Fike 3.....¶0.13 2730
Brooks Johnson, Bricker 1.....¶0.15 679
N. T. Shonts, Gardner 1..... 5 2778
Lawrence County—
Portage Producers, Cambria Clay Products Co. 16.....¶1.2 409
Licking County—
H. S. Lacknet, Weakley 1..... ¶ 624
Penick et al, Esheiman 5..... * 2708
National Gas Co., Reddick 1..... 36 2069
Allen Willey et al, Jeffers 1.....¶1.5 2503
Medina County—
D. Gaunciger, Fee.....¶0.52 3455
Preston, Grigsby 15J8..... 5 539
Grigsby J9 ..... 5 532
Grigsby K8 ..... * 515
Meigs County—
Roush Bros., Rush 4.....¶0.09 3300
Tynee et al, Capehart 1.....¶0.05 3345
Monroe County—
Gold Crown Oil & Gas Co., Lucas 2.....¶0.03 2020
Morgan County—
Williams et al, Green 1.....¶0.40 915
Geddes 1 .....¶ 1.0 378
W. S. Harris, Starling 1 .....¶0.40 833
Muskingum County—
Industrial Gas Corp., Meyer 1.....¶1.33 4158
Boyce 1.....¶0.18 4287
Noble County—
F. W. Fassett, Leasure 4..... ¼ 215
Perry County—
Preston Oil Co., Shaw 2..... 575 3269
Pure Oil Co., Wilson 1..... 265 3297
Tuscarawas County—
W. Va. Nat. Gas, Holshoy 2.....¶1.2 4881
Washington County—
Newport Oil Co., Adkins 22..... 3 428
L. M. White, Staller 1..... * 1806
Peake et al, Delong 7..... * 201
Phillips & Co., Sherbourne 1..... * 625
Wayne County—
Ohio Fuel, Gerber 1.....¶0.2 837
OLD WELLS DRILLED DEEPER
Athens County—
Ohio Fuel, Wooley 1.....¶0.04 1410
Snodgrass 2.....¶0.09 1708
INPUT WELLS
Preston, Grigsby CO9..... .. 519
Grigsby DO7 492
Grigsby GO8 491
Grigsby KO8 533

Oklahoma

Carter County—
Maxine Oil, Brady 7, nw c se 5-2s-2w 15 1470
Creek County—
Jones Oil, Jennings 1, nw se ne 18-16n-8e ..... * 3726
Zephyr Drlg., Bishop 1, sw sw ne 34-17n-8e 59 2387
Big Four Pet., Vance 6, nw ne ne 24-19n-7e 10 2728
Hughes County—
Tri Oil, Breeding 1, se ne nw 12-7n-8e 18 1078
Jackson County—
Aloma Pet., Robertson 1-A, 150 ft w of ne ne se 15-1n-20w 19 1601
Kay County—
National Union, Warren 1, se se nw 19-28n-1e 27 3352
LeFlore County—
Western Okla. Gas, Bryan 1, sw nw se 22-9n-24e (pb 5050) .....¶2.5 5550
Logan County—
Diehl et al, Lesch 1, ne ne ne 19-16n-1w ..... * 5875
Muskogee County—
Wagester, Salsman 1-A, c sw sw 13-13n-18e .....¶.4 834
Noble County—
Superior, Faubion 2, ne sw se 16-22n-1e .....¶.250 4731
C. P. Quinlan, Hicks 1, se se sw 36-23n-2w ..... * 5271
Okfuskee County—
Shell Oil, Harjo 1, ne se nw 35-11n-8e 1245 3434
Oklahoma County—
Clark & Co., Black 1, ne ne nw nw 10-11n-3w 51 6446
Harper & Turner, Kunc 1, nw sw nw 33-14n-2w (pb 5870) 36 6132
Okmulgee County—
B. W. Parks, Lewis 1-A, nw nw se nw 6-13n-12e ..... * 960
Osage County—
Stanolind 16, sw sw se 18-27n-8e... 172 2433
Pontotoc County—
King, Crawford 1, 50 ft s c e½ w½ 11-3n-6e 15 1202
Mary F. Oil, Shields 11, ne se nw ne 33-5n-8e 20 681
Pottawatomie County—
Atlantic, Goss 2, sw nw se 6-6n-4e.. 326 4526
M. A. Hallsey, Brandenburg 1, nw nw se 23-7n-3e ..... * 4817
Eagle-Helmerich-Payne, State "C" 2, ne ne nw 16-7n-5e 155 4125
Seminole County—
Atlantic, Merkle 5, se nw ne 32-8n-5e 180 4362
Delaney & Carter, Jonah 1, 100 ft s of c se ne 25-8n-6e ..... * 4308
H. S. Moss et al, Harris-Rogers 1, se se ne 16-8n-8e 15 4034
OLD WELLS DEEPENED
Carter County—
W. Neustadt, Choate 5 (20), se nw nw nw 20-4s-2w (otd 1968)..... 550 2150
Okfuskee County—
Bialock & Strange, Wilson 1-A, nw nw se ne 21-12n-11e (otd 2250)... 110 2732
Oklahoma County—
Plains, Baum 1, ne se se nw 15-11n-3e (otd 6530) 385 6562
Seminole County—
Carter et al, Randolph 1, 105 ft e of sw se ne 35-11n-6e (otd 4099). 30 4123

Pennsylvania

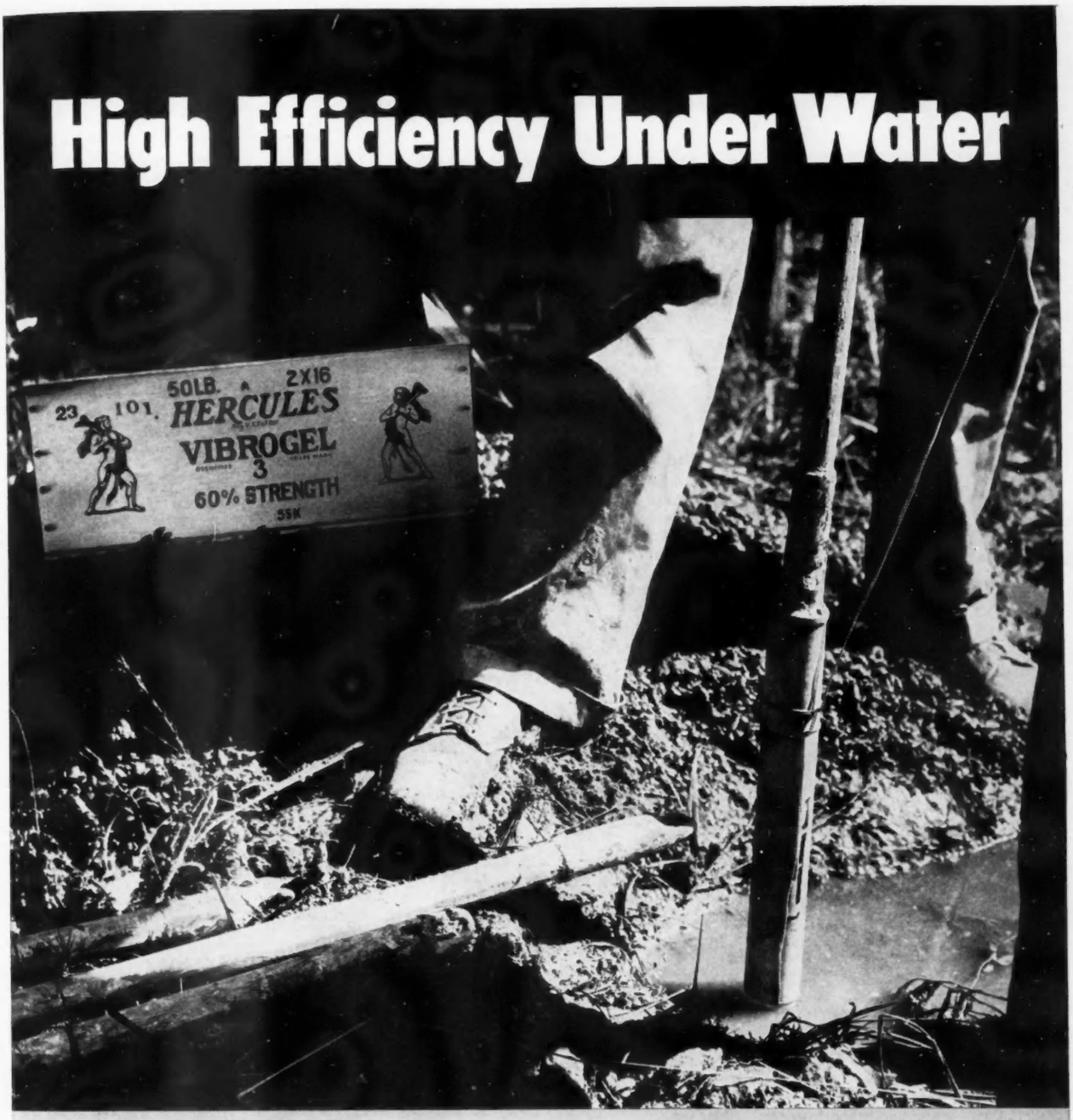
Bradford District—
Messer Oil Corp., Redfield ..... 1½ ..
C. M. & F. J. Lippert, fee ..... 4 ..
B. McCaffery et al, McCaffery .... 1 ..
J. A. Bucher et al, Kinley Oil Co. ... 1 ..
Bradford Transit Co., 17 wells .... 17 ..
Forest Oil Corp., 2 wells ..... 2 ..
Forest Petroleum Corp., 2 wells ... 2 ..
Niagara Oil Co., Corp., 7 wells .... 7 ..
Esther Oil Co., Lamton ..... 1½ ..
Dallas Oil Co., Ekas ..... 1 ..
T. H. Given, Bing 317-31-33-27 .... 1 ..
Triple Oil Co., fee ..... 3 ..
Water Intake Wells:
Penn Valley Crude Oil No. 2 fee .. .. ..
Forest Oil Corp. ....
Forest Petroleum Corp., 2 wells ... .
Niagara Oil Corp., 4 wells ....
Grant & Mohan Oil Co., No. E, Bing 48607 ....
Melvin-Towne Oil Co., fee ....
New York-Penn Gas Field—
Harold French, Frank Lilley ..... * ..
Middle District—
Gibson Wade Gas Co., John Obenrader ..... ¶ ..
McCray & Espy, Espy ..... 1 ..
F. A. & W. Fleming, J. A. Fleming 3 ..
South Penn Oil Co., Smith & Grace 2 ..
Titusville Trust Co. & Fleming, lot 3192 ..... ½ ..
E. K. Edie Johnson ..... * ..
Butler-Armstrong District—
Hilderbrand & Dieter, Sarah McBride ..... 1 ..
D. L. Baird, N. M. Hoover ..... 2 ..
SOUTHWEST PENNSYLVANIA
Armstrong County—
Local Co., Heilman 1 .....¶0.28 2058
Duquesne, S. Trux 1 ..... * ..
J. K. Sharp, Tr., Manners 1 .....¶ 0.2 1468
Clarion County—
T. W. Phillips, Swarts 1 .....¶0.07 3156
Fayette County—
Duquesne, Kosack 1 ..... * 2703
Greene County—
Wasmuth & Callahan, Goodwin Heirs 1 ..... ¶ 2750
Washington County—
Carnegie, Nilan Heirs 1 ..... * 3028
Westmoreland County—
Peoples Nat. Gas Co., Iddings 2..¶0.24 1722
OLD WELL DRILLED DEEPER
Armstrong County—
Peoples Nat. Gas Co., Boyer 1 .....¶0.05 3500

West Texas

Cochran County (Slaughter)—
Devonian et al, Duggan 11-B 739 5067
Geo. P. Livermore, Boyd-Texaco 8.. 290 5085
Boyd-Texaco 10.....1036 5094
Crane County (Sand Hills)—
Humble et al, Tubb 60 ..... 103 4600
Crane County (Sand Hills Deep)—
American Liberty et al, Tubb 13...9207 5763
Crockett County (Soma-Noelke)—
Mudge Oil Co., Noelke 2-A 1061 1184
Crockett County (Todd Deep)—
Continental et al, Todd 9-B 4704 5784
Crockett County (World-Powell)—
H. J. Eastham Jr. et al, Powell-Gulf 2 ..... 41 2675
Dawson County (Wildcat)—
Stanolind, Scanlan 2 ..... * 5885
Ector County (Foster)—
Broderick & Calvert, Bagley 6 ....6367 4356
Sinclair Prairie, Gist 6 ..... 182 4323
Ector County (North Goldsmith)—
M. A. Grisham-M. J. Delaney, Cowden 1-A ..... * 6431
Ector County (Goldsmith)—
Gulf, Goldsmith 370 .....1111 4249
Ector County (North Cowden)—
Sinclair Prairie, Johnson 15-D..... 849 4175
Texas Co., Holt 13 ..... 781 4660
Gaines County (Seminole)—
Ohio, Averitt 6 ..... * 5289
Hockley County (Slaughter)—
Honolulu Oil Corp., Mallet 10-B ...1559 5035
Mallet 11-B, Lab 11 .....1175 5034
Magnolia, Mallet 11-D 1127 4998
Mallet 12-J 1203 5035
Texas Co., Mallet 4-B 693 5000
Mallet 6-B 588 4995
Slaughter (6219-ac) 24 ..... 509 5015
Slaughter 30 .....1121 4995
T. P. Coal & Oil Co., Mallet 2-B...1235 5028
Lynn County (Wildcats)—
Uscan Drl. Co.-Geo. Livermore, Rice 1 ..... * 6431
Trinity Drl. Co.-Dan Auld, Auld 1.. * 5202
Mitchell County (Northwest)—
Magnolia, Rhoades 1 ..... * 1751
F. W. Marrick, Inc., Strain 3, sec 10 222 1795
Pecos County (Abell)—
Phillips, Hall-Abell 1 ..... * 5693
Stanolind, Rixse 1 ..... 693 5416
Pecos County (Conry-Davis)—
Stanolind, D. W. Smith 1 (pb 3870) 158 3900
Pecos County (Tobarg)—
Stanolind, Smith 12-B 89 377
Scurry County (Sharon)—
R-Y Oil Co., Burney 2 ..... 152 2440
Terry County (Slaughter)—
Geo. P. Livermore, Jackson 4.....2219 5042
Ward County—
Atlantic, University-Wickett 3 .... 512 2921
Gulf, Estes 150 ..... 485 2645
Hutchings 160 ..... 22 3100
Magnolia, Sealy 2-42 ..... 714 2924
Winkler County (Hendrick)—
C. V. Lyman et al, Johnson-Cowden 1 ..... 408 2987

[*Continued on page 90*]

High Efficiency Under Water



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N-17

HERCULES POWDER COMPANY
INCORPORATED

935 KING STREET • WILMINGTON • DELAWARE

Company, Well and Location	Init. Prod. Bbls.	Depth
WEST TEXAS—Continued		
Winkler County (Keystone)—		
Ralph Lowe et al, Zachary-Atlantic 3	274	3347
Hal Peck-Croft-Hall, Campbell-Gulf 1	318	3377
Richardson Oils, Inc., Keystone-Sun 5	287	3491
Yoakum County (Wasson)—		
Argo Oil Corp., Comer 8-C	1602	5170
OLD WELLS DEEPENED		
Crane County (Church-Fields)—		
Gulf, University-Lassiter 1 (otd 3096)	146	3215
Howard County—		
Mid-Continent, Denman 3 (otd 2560)	148	2859
Upton County (McCamey)—		
Sinclair Prairie, Lane 1 (otd 2030)	76	2100
Lane 2 (otd 2052)	8	2100
East Texas		
Anderson County (Long Lake)—		
Tex Harvey Oil Co., Cartmel 3	68	5403
H. L. Hunt Oil Co., Broyles-Wolverton 6	69	5373
Freestone County (Cayuga)—		
Amerada, Berk 13	81	4062
Stanolind, Cullinan 6	136	4020
Freestone County (Wortham)—		
J. B. Daniel et al, Young 1	16	2960
Houston County (Wildcat)—		
T. C. Chisum & A. L. Porter, Austin 1	•	3603
Navarro County (Corsicana-Powell)—		
Midco Gas Corp., McKie 1	•	1784
Panola County (Bethany)—		
Mid-States Oil Corp., Roquemore A-1, B. C. Jordan sur	¶10	5980
Smith County (Chapel Hill)—		
Sun, Sanders 1-B	208	8367
Smith County (Wildcat)—		
C. E. West et al, Collier 1	•	4003
Wood County (Wildcat)—		
Fred Strang et al, Old 1	•	5301
Wood County (Hawkins)—		
Gen'l American, Bethlehem Church 1	454	4792
Humble, J. T. Green 1-A (5.37-ac)	438	4762
E. W. Moore 2-A (96.89-ac)	480	4722
F. M. Morrison 1 (20.23-ac)	438	4690
C. H. Shamburger 1 (108.67-ac) (pb 4950 ft)	273	5147
Roger Lacy et al, Pouncey 1, (100-ac)	432	4783
Rudco O&G Co.-Robbins-Shankey, Morrison 1	497	4800
Joiner Area—		
Shell, Brooks 30-B	900	3711
Kilgore Area—		
Wheelock & Collins, Wells 23	1500	3655
John Wrather et al, I&GN 24-A	800	3575
Longview Area—		
Selby O&G Co., Snavely 30-A	2000	3558
Shell, Landers 33	750	3729
SALT WATER DISPOSAL		
Joiner Area—		
Ohio, J. Sadler 2 (20-ac)	.	3775

Southwest Texas

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Atascosa County (Wildcat)—		
Briggs-Atascosa Co., Stevens 1-A	•	1504
Bexar County (N. Somerset)—		
C. G. Newton, Walter 1	•	1336
Madina County (Wildcat)—		
Duncan & Brown, Haby 1	•	1596
Williamson County (Wildcat)—		
H. G. Albert, Fee 1	•	495

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County (Wildcat)—		
J. B. Blanchard, Carrillo 1	•	4715
Jim Hogg County (Colorado)—		
Humble, King-Colorado 34-B	450	3034
Jim Hogg County (Las Animas)—		
Sollars Royalty Co., M. McLean 1	¶2	1815
LaSalle County (Washburn)—		
Quintana, Washburn 3-A	•	11042
McMullen County (S. Campana)—		
Argo, Edrington 4-I	250	3029
Yoakam & Gorman, Ferguson 2	•	3590
Webb County (Killam)—		
O. W. Kilam, Garcia & Villareal 17	61	2075
Zapata County (Lopeno)—		
Randall-Thompson, Ramirez 1	•	2622
OLD WELL DEEPENED		
Zapata County (Lopeno)—		
Venture Pet. Co., Ramirez 1, otd 2549	¶25	2889

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Brooks County (Kelsey)—		
Humble, McGill 81, new sand	500	4945
Brooks County (Alta Mesa)—		
Standard of Texas, Mestina 15	130	2487
Jackson County (LaWard)—		
Humble, Straus 2	500	5223
Jackson County (Lolita)—		
Circle, Walker & McFerron 2	450	5300
Magnolia, Four-Way 4	550	5948
Ward (Mitchell Est.) 14	600	5297
Jackson County (West Ranch)—		
J. A. Campbell, J. M. Bennett 1	•	6020
Humble, Vanderbilt-State 2	750	5568
Magnolia, West 191-A	400	5568
West 192-A	400	6157
West 193-A	450	5120
Jackson County (West Ganado)—		
Pure, Spacek 4	350	5515
Jim Wells County (Ben Bolt)—		
H. H. Howell, White 1	¶2 & 40	5145
Jim Wells County (E. Premont)—		
Magnolia, Selligson 21	450	5210
Transwestern, Dunlap 5	500	6050
Jim Wells County (Wildcats)—		
Earl Callaway et al, Fowler 1	•	5707
O. W. Killam, Rehmet 1	•	5252
Live Oak County (Oakville)—		
Simmons Oil Co., Reagan 3-C	•	2925
Live Oak County (Wildcats)—		
Rantex Oil Co., Hinnant 1	•	6226
Joe Stelzig, Derrough 1	•	2390
Nueces County (Minnie Bock)—		
Tom Graham, Dugger 5	¶3 & 30	3836
Stanolind, Parr 5	700	3827
Nueces County (Stratton)—		
Chicago Corp., Wardner 25	450	6615
Southern Minerals, Stratton 29	350	6690
Nueces County (Wildcats)—		
G. B. Buescher, Gillette 1, new fld.	750	7315
Southern Minerals, Bartel 1	•	6509
Refugio County (Tomoconnor)—		
Quintana, Williams 30-A	1500	5926
San Patricio County (Midway)—		
Pan American, O. L. Smith 1, new sand	525	6510
Victoria County (N. McFaddin)—		
Barnsdall, Bentiz 1, new sand	300	5960

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HIGHLY CORROSION-RESISTANT, strong and durable, Transite Pipe assures continued low maintenance.

MORE and more leading oil producers are proving that salt-water and lead lines cost less with J-M Transite Pipe. Both inside and out, this tough asbestos-cement pipe offers unusual resistance to corrosion. It cannot rust or decay... keeps maintenance cost down during years of low-cost service.

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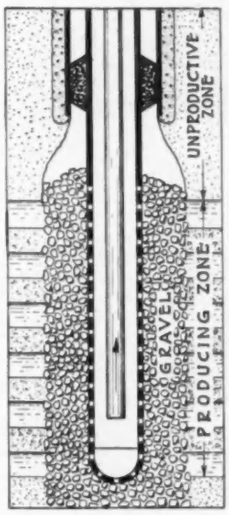
through the nation-wide facilities of the

Halliburton Oil Well Cementing Company

*Gravel Packing by Circulation



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W·H·CURTIN & CO. Inc
HOUSTON U·S·A TEXAS

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
West Central Texas		
Coleman County—		
Crabb & McNeal, Hanke 1	*	784
Jones County—		
Condor Pet. Co., C. Holt 8	99	1919
M. J. Delaney et al, Swanson 1	*	3306
Hedrick Oil Co., Akard 3-D	122	2139
Kirk-Johnson-Ungren-Frazier, Sayles 9	88	1930
Jones-Stasney-Groover et al, Cannon 1	204	2327
Pet. Producers Co., Akard 4	47	2149
Shackelford County—		
Green & Hagerty, Elliott 3	23	840
Hickok & Harry Reynolds, Nail 14-A	184	1606
C. J. Kleiner et al, Morris 3-C	10	1512
Roeser-Pendleton-Conoco, Cook 4-A-117	129	1692
Stephens County—		
Wittmer-Knight-Ewing, McKelvin 1-B	¶2¾	3545
Taylor County—		
Tal-Vez Oil Co., Richards 4	*	2407
Texas Panhandle		
Carson County—		
Texas Co., Cooper 17	52	3222
Gray County—		
Bell O&G Co., Webb 3-D	59	2505
Magnolia, Fee (tr. 227) 48	186	2860
Moran Bros., Davidson 2	109	3128
Phillips, Tay 1	171	2990
Skelly, Lovett 1	289	2949
Stanolind, Lovett 1	370	3035
Taylor Oil Co., Taylor 7-B	65	2893
Texas Co., J. W. Brown 9	260	3270
Chapman 11-A	161	2820
Gethings 4	281	2876
Jackson 4	44	3090
J. C. Short 11	24	2970
W. H. Taylor 1-F	454	2914
Hutchinson County—		
J. M. Huber Corp., Weatherly 10	526	3065
Phillips, Cockrell 74	188	3017
Cockrell 80	159	2875
Shell, Harvey Sisters 31	376	3082
Stanolind, Haile 24-B	76	3046
Texas Co., Garner 16-A	292	3024
J. W. Moore 12	182	3157
R. L. Pond 37	299	3110
Moore County—		
Texoma Nat. Gas Co., Coon 18-M	¶12	3101
North Texas		
Archer County (Griffin-Kadane)—		
J. E. Kadane, Tr., Griffin 1	*	4386
Archer County (Scotland)—		
Shell, Coleman 3-A	872	5196
Archer County (Wildcat)—		
White & Duncan, King-Richardson 1	*	1239
Archer County—		
F. W. Palmer et al, Richardson 12	10	1184
Rancho Oil Co., Prideaux 1	*	699
Shappell Oil Co., Bell 25	15	1006
Young & Bernhard, Morrison 4	20	1296
Baylor County (Mabelle)—		
British-American, 1st Natl. Bank	75	2535
Clay County (Wildcat)—		
E. C. Harlin Jr. et al, Kuhn 1	*	1350
Clay County—		
Geo. Golden et al, Myers 3	*	1198
C. Y. Gorman et al, Taylor 10	23	1134
Harper & Knappenberger, Bilbrey 4	48	1168
Metzner & Burns, Taylor 16	*	364
Staley Oil Co., Hamilton 1	75	1131
Sussex Oil Corp., Hamilton 7	65	1130
Texas Co., J. P. Boddy 1	75	1044
Mary Stephenson 3	44	1150
Cooke County (Walnut Bend)—		
Cox & Jake Hamon, Neu-Texaco 14-B	198	4902
Cooke County—		
Bridwell Oil Co., Flusche 15-B	15	788
Dodson & Oglehart, Rosson 4	17	1076
E. W. Mudge Jr. et al, Fette 4	20	1117
Trumter Pet. Co., Andress 20-B	7	800
Cooke County (Wildcats)—		
Falls Ref. Co.-Target Drl. Co., Epps 1	*	1668
Paul Stevenson et al, Donald 1	*	2929
Denton County (Wildcat)—		
Jones Drl. Co.-D. S. Hager, Waide 1	*	1939
Jack County—		
Buttram Pet. Corp., Preston 9	*	2032
B. C. Gilmore et al, Moore 3	3	421
Moore 4	*	471
Ben Rankin-Elliott Prod. Co., Stewart 2-S	*	437
Wichita County—		
Geo. W. Cooper et al, Waggoner Est. 6	*	1878
Fruendlich-Persky-Goldsmith, Roller 1	*	1854
W. H. Hammon et al, Johnson 6	40	1323
Hanlon & Buchanan, T. L. Burnett 6-A	*	922
J. W. Hastings et al, Cooper 1	*	1352
Chas. E. Morrison et al, Snoddy 1	*	2002
Rubsam-Switzer-Widner, McClure 22-B	*	1352
Westbrook Oil Corp., Ramming 2-B	*	1290
Wichita County (K-M-A)—		
Deep Oil Dev. Co., Munger 3-F	344	3900
W. H. Hammon-Hanlon-Buchanan, Fassett-Tuttle 49	560	3982
W. P. Lincoln & Moore, Bradley 7	480	3860
Wichita County (K-M-A Ellenberger)—		
Shell & Phillips, Griffin 31-E	2576	4415
Griffin 33-E	2560	4374
Tide Water et al, Pettit 6-E	1488	4400
Venmex Oil Co., River 4-E	1360	4376
Wichita County (Wildcat)—		
Northern Drl. Co., Roller 1	†	457
Wilbarger County (Fargo)—		
Ed J. Kubat et al, Sears 1	293	4453
Wilbarger County—		
G. E. Slaugenhop et al, Blackman 5	10	1481
Texas Co., Waggoner-Tate 14	19	2000
Young County (Wildcat)—		
L. T. Burns et al, Jeffrey 1	*	4985
Young County—		
R. P. Dorian & Mitchell, Belknap Coal 1 (pb 3988)	19	4503
Goldsmith-Mitchell-Ard, Dunagan 3	4	926
Coke Lupton & J. McLester, Madlan 2-A	77	3723
W. F. Palmer et al, Campbell 4-D	18	894
Campbell 5-D	35	899
Dietrich 1	*	1300
Pemeta Oil Co., Robinson 5-B	10	669
Henry Zweifel et al, Pistole 3-B	636	3990
Sewell 4-C	569	4255
Texas Gulf Coast		
Chambers County (Anahuac)—		
Humble, E. W. Boyt 9	460	7127
Chambers County (Oyster Bayou)—		
Sun, Felix Jackson 5	838	8290
Fort Bend County (Blue Ridge)—		
G. J. Lee, Luscher 3	120	3291
Harris County (Goose Creek)—		
Grace, Busch 1	92	2018
Hardin County (Sour Lake)—		
H. F. Baker, Sun 1	52	1706
Chambers County (Barbers Hill)—		
Texas Gulf Prod., Fitzgerald 3-E	196	5388
Jefferson County (Fannett)—		
Gulf, McLean 8-E	90	8534
Liberty County (Hull)—		
Republic, Dolbear 172	26	2420
Tyler County (Wildcat)—		
Navarro, Reid Jr. 1	*	7711
Tyler County (Joe's Lake)—		
Republic, Hurd 52	340	10625
Wharton County (Wildcat)—		
Pure, Stockton 1	*	6564
Wharton County (Withers)—		
F. W. Michaux, Pierce A-4	207	5377
Texas Co., Pierce Est. C-100	112	5380
West Virginia		
Boone County—		
Owens-Libby-Owens Gas, Bull Creek Coal Land Co. 17	¶0.21	4351
Pure Oil Co., Federal Coal Co. 89	*	2894
Braxton County—		
Creed York, McElwain 1	¶0.08	2408
Pittsburgh & W. Va. Gas Co., Dunn 7826	*	2150
Calhoun County—		
McCall Drilling Co., Jacobs Realty Co.	5	2000
L. B. Carroll, Fee 14	¶0.05	2470
Clay County—		
Pittsburgh & West Va., Elk River Coal and Land Co. 7816	¶0.43	2180
Hancock County—		
R. J. Braden Co., Hewitt Heirs 28	2	867
Harrison County—		
Hope Nat. Gas Co., Robinson 1	¶0.20	2515
Jackson County—		
Columbian Carbon Co., Putnam 6	¶2.02	5387
Kanawha County—		
Columbian Carbon Co., Shafer 1	¶7.79	5237
Mingo County—		
Burning Creek Morrowbone Land Co., Fee 1	¶4.02	2840
Dixie Oil & Gas Co., Harvey 2	¶0.50	2800
Putnam County—		
Summit Gas Co., Caldwell 1	¶0.08	2222
Ritchie County—		
Clem S. Morris, Fee 1	¶0.05	1910
Upshur County—		
Central Oil & Gas Co., Fee 2	¶0.23	1478
Wayne County—		
W. Va. Gas Corp., Wayne Co. Poor Farm 2	¶0.08	3116
Owens-Libby-Owens, McGinnis 1	¶0.22	3164
Wetzel County—		
Carnegie, Goddard 1	¶0.05	3225
Wood County—		
M. W. Athey et al, Lauer 1	*	872
OLD WELL DRILLED DEEPER		
Ritchie County—		
Nollem Oil & Gas Co., Cain 1	¶0.09	1965

WILDCAT REPORT
New Starts and Completions

ARKANSAS
FIRST REPORT

Miller County—Hunt Oil Co., Fouke 1, c ne sw 34-16-27, rig.

COMPLETION

LaFayette County—Tidewater et al, Moore 1, se se 29-17-24, flowed 261 bbls 45.2-gr oil 24 hrs ¼-in ch 2.5% sw, td 9503 ft.

CALIFORNIA
FIRST REPORTS

Kern County—Bradford Bishop's No. 1, 22-27-28, Mt. Poso area, lcn.

Los Angeles County—Texas's Fernando 1, 11-4-17, Castaic area, lcn.

Ventura County—Henderson-Ortez Oil Co.'s O'Leary 1, 29-4-20, Timber Canyon area, rigging.

COMPLETIONS

Kern County—Richfield's Stone-Bragg 1, 33-13-12, abnd 5724 ft.

Los Angeles County—Jergins Oil Co.'s Dominguez 2-18, sw 190th St. & Hawthorne Blvd., abnd 4110 ft.

Yolo County—Amerada's F. & C. 1, 4-6-3, abnd 7244 ft.

ILLINOIS
FIRST REPORTS

Clinton County—Paul Doran et al's Kell 1, sw sw nw 36-3n-2w, lcn.

Franklin County — Jungbecker et al's Mitchell 1, s½ nw ne 9-5s-4e, lcn. F. McQuigg's Old Ben Coal Co. 1, nw se nw 5-6s-2e, lcn. Peabody Coal Co.'s Fee 1, nw nw nw 7-7s-3e, lcn.

Hamilton County—Politis et al's Mayberry 1 ne nw ne 13-6s-6e, dr.

Jackson County—W. E. Skeels et al's Williams Est. 1, ne se sw 33-7s-1w, dr.

Jefferson County—Longhorn Oil Co.'s Severs 1, s½ se se 26-2s-3e, lcn.

Marion County—Lagers & Webb's Clear 1, sw ne ne 28-4n-2e, lcn.

Richland County—Richey et al's Richey 1, e½ se sw 23-4n-14w, lcn.

Wabash County—Wabash O&G Assn.'s Carrie 1, ne sw ne 31-2n-12w, dr.

Wayne County—Ohio's Schwartz 1, sw se ne 11-2s-6w, lcn.

White County—Papoose Oil Co.'s Friscoll 1, w½ sw se 18-5s-8e, lcn. Allen & Seiverson's Ford et al 1, ne ne ne 13-5s-10e, lcn.

Williamson County—M. A. Massad's Fleming 1, ne se nw 9-10s-2e, lcn.

COMPLETIONS

Clay Conty—Hannon's Newton 1, ne sw se 18-3n-5e, abnd 2896 ft.

Jefferson County—A. W. Hutchins' Savoie 1, nw nw nw 18-3s-2e, abnd 1947 ft.

Morgan County—Magnolia's Keplinger 1, sw sw se 28-13n-8w, abnd 1765 ft.

Washington County — C. V. Richardson's Kasten 1, sw sw sw 27-1n-2w, abnd 1611 ft.

Wayne County—Pioneer et al's Williamson 1, c s½ sw ne 22-1n-6e, McClos. 3168-69 ft, 3172-77 ft, td 3187 ft, flow 1200 bbls oil.

White County—Yingling et al's Shephard 1, ne ne ne 5-4s-10e, Weiler 2908-25 ft, td 3187 ft, 74 bbls oil. W. F. Catlett's Calvert 1, se se nw 32-5s-10e, Palestine 2099-2108 ft, td 3148 ft, pb 2188 ft, 90 bbls oil.

INDIANA
FIRST REPORTS

Gibson County—Jess Woodruff et al's Garrett Hall 1, 165 ft sw nw sw 31-2s-12w, lcn.

Posey County—Robert Burns' Mumford 1, c sw nw ne 5-4s-13w, lcn. E. S. Taxman's Luigs 1, sw sw nw se 14-5s-12w, lcn.

Warrick County—Vaughn S. Hollingsworth's Ezell 1, ne sw se 36-6s-8w, lcn.

COMPLETIONS

Posey County—Cherry & Kidd's Ford 1, se sw nw 34-4s-13w, se sw nw 34-4s-13w, McClos. 2964-76 ft, td 3110 ft, pb 3010 ft, 15 bbls water, 22 bbls oil.

Spencer County—E. J. Goldschmidt's Yaeger 1, nw se se 6-7s-7w, abnd 1118 ft.

Sullivan County—W. J. Reynolds et al's Hyde 1, sw ne ne 9-8n-10w, abnd 2600 ft.

KANSAS
FIRST REPORTS

Douglas County—Ira Keith's Smith 1, c ne ne 3-11s-18e, mim.

Elk County—Frank Oyster's Stewart 1, ne nw se 24-28s-11e, dr.

Graham County—Cities Service's Teall 1 nw nw se 27-9s-21w, lcn.

Jefferson County—E. V. Sackson's Sheldon 1, c ne se 14-9s-19e, pits.

Pawnee County—Helmerich & Payne's Wilson 1, ne ne se 26-21s-17w, rur.

Rice County—Aladdin et al's Lackey 1, c w p sw se 1-21s-6w, dr.

COMPLETIONS

Barton County—Helmerich & Payne's Unruh 1, nw nw ne 30-20s-15w, Cottonwood 2450 ft, Neva 2495 ft, Lansing 3516 ft, Congl. 3785 ft, abnd 4012 ft. Lebow & Gussman's Schrepel 1, c s½ ne se 26-20s-12w, Ft. Riley 1695 ft. Topeka 2748 ft, Kansas City 3136 ft, Congl. 3393 ft, Arbuckle 3395-3425 ft, abnd.

Cowley County—Palmer & Continental's Defore 1, se sw se 23-30s-3e, K. C. 2435 ft, Miss. 3013 ft, Arbuckle 3405 ft, abnd 3415 ft.

Jefferson County—Mosbacher et al's Stroud 1, c sw ne 20-10s-20e, Oread 40 ft, Lansing 360 ft, Base K. C. 690 ft, Miss. 1360 ft, abnd 1531 ft.

Kearney County—Stanolind's Patterson 1, c e½ se se 23-22s-38w, top sand 4740 ft, base sand 4751 ft, Boone 5250 ft, Base Miss. chert 5380 ft, Base Miss. lime 5536 ft, Viola 5536 ft, Arbuckle 5655 ft, td 5690 ft, pb 4784½ ft, 3000 bbls oil.

Pratt County—Skelly's Ganaway 1, c e½ ne se 30-28s-12w, Viola 4450 ft, Simpson 4549 ft, Arbuckle 4667-83 ft, shot 4220-39 ft, abnd.

Rice County—Derby's Mehl 1, sw sw sw 14-18s-10w, Anhydrite 466 ft, Topeka 2523 ft. Lansing 2933 ft, Congl 3227 ft, Arbuckle 3295 ft, abnd 3305 ft.

KENTUCKY
FIRST REPORT

Union County—Harry Smith et al's Waller 1, 6-N-21, lcn.

COMPLETIONS

Daviess County—Paulamous et al's Thompson 1, 10-O-32, abnd 745 ft.

Union County—A. E. Elliott et al's Withers 1, 21-N-34, abnd 853 ft.

NORTH LOUISIANA
FIRST REPORT

DeSoto Parish — E. L. Kistler, H. M. Creighton 1, sw 29-12n-11w, rig.

COMPLETION

Catahoula Parish—H. L. Hunt, Goodpine F-21, c nw sw 9-10n-5e, abnd 5045 ft.

SOUTH LOUISIANA
FIRST REPORTS

Acadia Parish—Stanolind's G. T. Tweedel 1, Section 77-7s-3e, lcn 9500-ft Frio test.

Acadia Parish—Humble's Freeland 1, Sec 35-10s-1e, 2200 ft s of old dry hole in South Crowley area, drilling.

COMPLETIONS

Calcasieu Parish—Stanolind's Locke-Moore 1, Lockport area, Sec 4-10s-9w, abnd 8659 ft.

St. Helena Parish—Humble's Great Southern 1, Greensberg area, sec 20-1s-5e, abnd 8333 ft.

St. Mary Parish—Lisbon-Iberia Oil Co.'s Leopard Bayou 1 (was Harbor Oil Co.), sec 14-16s-9e, ½-mi ne Humble's Marin 1 discovery. Drilled to 10,112 ft, stuck drill stem, plugged back and sidetracked 8131, sand showing oil found 10,100-105 ft, broken sand showing oil 10,105-115 ft, abnd 10,207 ft.

MICHIGAN
FIRST REPORTS

Livingstone County—Fisher-McCall's Weimester 1, c s½ s½ 10-2n-5e, dr.

Newaygo County—E. B. Strom's Messner 1, sw sw ne 10-13n-14w, rig.

Shiawassee County—H. H. Mackey's Barlow 1, se se ne 4-5n-4e, rig.

COMPLETIONS

Mecosta County—C. L. Maguire's Wood 1, c s½ sw se 27-16n-7w, Dundee 3773 ft, abnd 3796 ft.

Montcalm County—Sun's Crawford 1, ne ne se 13-11n-8w, Dundee 3336 ft, abnd 3410 ft.

Van Buren County—Earl Hartman's Fulton 1, sw nw ne 28-1s-13w, Traverse 1352 ft, abnd 1360 ft.

NEBRASKA
FIRST REPORTS

Pawnee County—Henry Blazer's Wilson 1, ne nw nw 4-1n-10e, dr.

Richardson County—Skelly's Roesch 1, c n½ nw 36-3n-16e, rur.

COMPLETIONS

Nemaha County—Ellis Bros.' Armstrong 1, c w½ ne 10-6n-15e, Lansing 670 ft, abnd 775 ft.

NEW MEXICO
FIRST REPORT

Lea County—Culbertson & Irwin's Welsh 1, c ne nw 13-19s-34e, mim.

COMPLETIONS

De Baca County—Compton Oil Co.'s Overton 2, 1-1n-20e, abnd 1015 ft.

Eddy County—Flynn-Welch-Yates' Parcell 1, sw ne nw 34-19s-29e, abnd 2522 ft.

OKLAHOMA
FIRST REPORTS

Creek County—Helmerich & Payne's Knox 1, se se sw 4-15n-7e, mim.

Kay County—McKnabb's School Land 1, se se sw 13-27-2e, dr.

Muskogee County—France Paris' Clark 1-A, c e l se se 32-13n-19e, mim.

Pottawatomie County—Lyons & Smith's Stalnaker 1-B, sw nw sw 24-8n-4e, gir.

COMPLETIONS

Caddo County—Texas' Smith 2, c se nw 2-5n-12w, gas from Hunton, cemented 1616 ft, perf. 2240 ft, 2.4 gas, pb Sylvan Dolomite 2230 ft, Viola 2344 ft, Simpson dense 3205 ft, Simpson green shale 3313 ft, td 3433 ft, 1434 bbls oil.

Kiowa County — McWhirter-Hinnerman's Vanderneck 1-A, 3-7n-19w, Gyp. 100-308 ft, red beds 308-1452 ft, lime 1452-55 ft, granite wash 1800 ft, granite 2330-2350 ft, abnd.

Pontotoc County—Hughes-Thomas et al's

Pictured above is a part of our TUBE-TURN Stocks. Top row of bin shows welding reducers, tees and 180° TUBE-TURNS. Middle row of bin shows 45° TUBE-TURNS and welding tees. Bottom row of bin shows 90° Standard TUBE-TURNS. Row in foreground shows welding heads and 180° TUBE-TURNS. Available in standard, extra heavy and double extra heavy patterns.

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If interested in this material please communicate with Mr. W. R. Owen, Purchasing Agent, CRI&P Railway, LaSalle Street Station, Chicago, Illinois.

Johnson 1-A, nw nw sw 26-4n-5e, sand 952-78 ft, sand 606 ft, td 987 ft, 600 ft, water in hole, abnd.

Stephens County—E. R. Perkins' State 1, c ne ne nw 16-3s-8w, show gas 854-92 ft, sand 2588-2610 ft, lime 2873-2927 ft, dry sand 3046-90 ft, water sand 3124-39 ft, abnd 3144 ft. Geo. L. Pace's Downey 1-B, c nw ne se 11-3s-6w, show gas 580-86 ft, abnd 1851 ft.

WEST TEXAS

FIRST REPORT

Concho County—W. J. Rutledge et al's Lovelace 1, swc sec 2, B. Anderson sur A-1673, lcn 5000-ft Ordovician.

COMPLETIONS

Dawson County—Stanolind's Scanlan 2, c se se E. L. Ry 87, blk M, elev 3145 ft, anhydrite 2090 ft, base salt 2900 ft, Yates sand 3060 ft, brown lime 3920 ft, San Andres 4510 ft, abnd 5885 ft.

Lynn County—Uscan Oil Co.-Ross Sport et al's Rice 1, c nw nw E. L. Ry 18, blk 11, elev 3229 ft, anhydrite 1990 ft, Yates sand 2560 ft, brown lime 3540 ft, San Andres lime 3810 ft, abnd 6431 ft.

NORTH TEXAS

FIRST REPORTS

Archer County—Dr. Ken Van Allen et al's Kelly 1, nec sec 68, Harris subdiv, lcn 5000-ft test.

Clay County—Continental's E. Spring 1, ne nw nw H&TC sec 24, blk 4, lcn 6500-ft test. Shell's Maddox 1, near c n½ T. M. Hughes sur A-179, lcn.

Cooke County—C. H. Gannon et al's McGeorge 1, sw part J. Collingsworth sur A-211, lcn.

COMPLETIONS

Archer County—White & Duncan's King-Richardson 1, blk 24, J. Scott sur A-374, abnd 1239 ft.

Clay County—E. C. Harlin Jr. et al's Kuhn 1, nwc blk 46, Specht & McCutcheon sur, abnd 1350 ft.

Cooke County—Falls Ref. Co.-Target Drl. Co.'s Epps 1, E. Langford sur, abnd 1668 ft. Paul Stevenson et al's Donald 1, T. B. Hardwick sur A-1599, abnd in schist 2929 ft.

Denton County—Jones Drl. Co.-D. S. Hager's Waide 1, sec of w-160-ac of J. Pearson sur A-1050, abnd in granite-wash 1939 ft.

Wichita County—Northern Drl. Co.'s Riller 1, nw part C. T. Ry. Sur A-438, jkd and abnd 457 ft.

Young County—L. T. Burns et al's Jeffery 1, sw ne TE&L sec 47, top Bend 4114 ft, Mississippi 4881 ft, abnd 4985 ft.

WEST CENTRAL TEXAS

FIRST REPORT

Taylor County—Butler-Horne Drl. Co. et al's Merchant 1, nwc se T&P sec 30, blk 16.

EAST TEXAS

FIRST REPORT

Hunt County—Cable Tool Drl. Co.'s Williams-Humble 1, nwc of 31.7-ac tr, Wm. Elam sur, lcn Paluxy test.

COMPLETIONS

Houston County—T. C. Chism & A. L. Porter's Austin 1, swc 167-ac tr, Frank Johnson sur, elev 385 ft, abnd 3603 ft.

Smith County—C. E. West et al's Collier 1, se part 159.6-ac tr, J. M. Procella sur, elev 404 ft, Pecan chalk 2710-3102 ft, base Austin 3630 ft, top Woodbine 3780 ft, abnd 4003 ft.

Wood County—Fred Strang et al's Old 1, swc 317-ac tr, J. R. Smith sur, elev 462 ft, Pecan 2955-3105 ft, Austin 4680-4840 ft, top Woodbine 4995 ft, abnd 5301 ft.

SOUTHWEST TEXAS

FIRST REPORTS

Bastrop County—John F. Camp & Sons' Rivers 1, E. Standifer sur, 3 mi sw Elgin, lcn 2000-ft test.

Bee County—Shield, Heyser, Heard & Clardy's McKinney 1, L. C. Randolph sur, 1 mi se Pettus, lcn 4500-ft test. Sun & Arkansas' Baird 1, Rountree sur, 7 mi sw Beeville, lcn 5000-ft test.

Duval County—R. Benjamin's C. J. Bain 1, sec 264, 10 mi nw Freer, lcn 2000-ft test. Graham Bros.' H. Yeager 1, sec 38, nw por county, dr 750 ft on 1300-ft contract. Magnolia's Duval Ranch 1, sec 45, 8 mi sw Freer, mi 3000-ft test.

Jim Hogg County—Sun's Ramirez 1, Abajo gr, se por of county, mi 4500-ft test.

McMullen County—Mabel Rossi's Brown 1, Suncan sur 465, 2 mi n Crowther, lcn.

San Patricio County—L. A. Douglas et al's Odem 1, sec 22, 5 mi se Odem, lcn 7200-ft test.

Starr County—Porter & Pickins' Guerra 1, sh 6, San Jose gr, outpost to LaReforma fld, ru.

Williamson County—G. A. Gage's J. Marcon 1, Coursey sur, 1 mi se Taylor, lcn 1500-ft test.

COMPLETIONS

Atascosa County—Briggs-Atascosa Co.'s Stevens A-1, sur 361, 8 mi ne Pleasanton, temp abnd 1504 ft.

Brooks County—Humble's McGill 81, Kelsey, sand 4924-45 ft, perf 4924-30 ft, flowed 166 bpd 45-gr o 9/64, 800 lbs tp, 1050 lbs cp; new sand.

Duval County—J. B. Blanchard's Carrillo 1, A. Cantu sur 310, 9½ mi w San Diego, abnd 4715 ft.

Jim Wells County—E. Callaway et al's A. M. Fowler 1, La Trinidad gr, 4½ mi s Ben Bolt townsite, abnd 5707 ft. O. W. Killam's Rehmet 1, Wm. Parks sur, 3 mi nw Alfred, abnd 5232 ft.

LaSalle County—Quintana Pet. Co.'s Washburn 3-A, nw outpost Washburn, abnd 11,042 ft, pb and comp as water well.

Live Oak County—Rantex Oil Co.'s Hinnant 1, Quin sur, 1 mi sw Largarto, abnd 6226 ft. Joe Stelzig's Derrough 1, tr 3406, blk 72, 9 mi sw Simmons City, abnd 2390 ft.

Medina County—Duncan & Brown's Haby 1, sur 393, 3½ mi sw Dunlay, abnd 1596 ft.

Nueces County—Geo. B. Buescher et al's Gillette 1, tr 6, 2 mi ne Luby fld, sand 7308-15 ft, perf 7308-12 ft, flowed 175 bpd 40-gr oil, ⅛ ch, tp 1220 lbs, cp 1500 lbs. Southern Minerals Corp.'s Bartel 1, Casa Blanca gr, 6 mi nw Banquette, abnd 6509 ft.

San Patricio County—Pan American Prod. Co.'s Smith 1, Midway sand 6255-80 ft, td 6510 ft, perf 6262-66 ft, flowed 182 bpd 42.3-gr o 5/32 ch, 900 lbs cp, cas sealed, 1% bs & w, gor 1280-1; new sand.

Victoria County—Barnsdall's Benitz 1, N. McFaddin, top sand 5767 ft, td 5960 ft, perf 5767-71 ft, flowed 85.14 bpd 38.9-gr o 6/64 ch, 870 lbs tp, 1290 lbs cp, no w, gor 450-1; new sand.

Williamson County—H. G. Albert's Fee 1, 3½ mi se Taylor, P. Coursey sur, abnd 495 ft.

TEXAS GULF COAST

FIRST REPORTS

Tyler County—Republic Prod. Co.'s Republic & Houston Fee 1, 4 mi se Spurger, H. M. Smith sur, 3147 ft from most n'ly nl & 467 ft from most e'ly wl & 2568 ft from most e'ly el of sur. PD 7700, lcn.

COMPLETIONS

Tyler County—Navarro's Reid Jr. 1, Hillester area, Emily Sanderson sur, top Cockfield 4367, top Wilcox 7145, abnd 7711 ft.

Wharton County—Pure's H. P. Stockton 1, Louise area, Henry Mills sur, abnd 6564 ft.

Thread Grinder

Landis Machine Company, Waynesboro, Pennsylvania, has issued a folder describing the New Precision Thread Grinder, said to represent the latest development in a modern high-speed, universal thread grinding machine.

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MEN IN THE INDUSTRY'S NEWS

GEORGE A. HILL, JR., president of the Houston Oil Company of Texas, and son of a Spindletop oil pioneer, will dedicate the monument to that field's first oil well during the Texas Mid-Continent Oil and Gas Association convention at Beaumont, October 9-11.

Dedication of the granite shaft will climax celebration of the fortieth anniversary of Spindletop. J. Cooke Wilson is convention chairman. The program, scheduled for Thursday afternoon, October 9, will be broadcast.

Hill is head of the division of production of the American Petroleum Institute. His hobby is research into Texas history, in which field he is author of two books. He is an authority on the early history of Spindletop, America's first great oil field. His father was active during the boom days of the field, and was chairman of the first conservation board in the history of the oil industry, heading a committee under authority from the Beaumont district court to see that operators completed their wells properly with adequate safety precautions. A number of prominent oil men who got their start at Spindletop in 1901 will take part in the dedicatory program.

PERCY C. JONES of The S. M. Jones Company, Toledo, Ohio, who has been in the oil business for fifty years and was one of the pioneers in Texas, is planning to attend the annual meeting of the Texas Mid-Continent Oil & Gas Association at Beaumont in October. He says that he wants to make his headquarters at the corner where the first oil well store of Spindletop fame was established by him back in 1901.

STANFORD L. ROSE, discussing India, was the speaker at Tulsa Geological Society's first meeting of the 1941-42 season. Rose, now representing Standard Oil Company of California in the Mid-Continent area, went to India in 1938, returning this year.

WALTER GEIST, vice president of Allis-Chalmers Manufacturing Company, Milwaukee, spoke before an open meeting of Purchasing Agents Association of Tulsa.

W. J. JAMES, purchasing agent for Stanolind Oil & Gas Company, has been granted indefinite leave of absence to assist OPM as purchasing consultant at Washington.

W. G. GREEN, Seismograph Service Corporation and president of the Tulsa chapter of the Nomads, pointed out the dangerous plight of the small business man and manufacturer in the midst of the industrial uncertainties of the present in a brief talk before the opening meeting of Nomad's 1941-42 program.

RODOLFO MARTIN, JR., petroleum engineer of Buenos Aires, and a representative of YPF, is visiting upper Mid-Continent oil fields and manufacturers.

I. DEE CAMPBELL, of Wichita Falls, Texas, associated with the Independent Petroleum Association of American for four years, has been transferred to Washington to assist association members in problems connected with priorities. The association has received inquiries concerning oil industry supplies and equipment. It is to expedite the handling of individual problems of the IPAA membership that a member of the association staff has been assigned full time to the work under the direction of Russell B. Brown, general counsel. This became effective September 18.

J. PERCIVAL RICE, Dallas attorney, has been appointed by the Office of Petroleum Coordinaor to be chief counsel for the District 3 OPC offices at Houston.

GUY A. TOMPSON, president of Bethlehem Supply Company, Tulsa, is in Washington to serve in an advisory capacity in the lend-lease structure defense effort.

RUTH SHELDON KNOWLES, writer on the oil industry and special representative of Petroleum Coordinator Ickes, is in South America to study oil operations. She was in Colombia two weeks ago and was scheduled to go to Ecuador, Peru and Argentina.

JERRY SADLER, Texas Railroad Commissioner, last week publicly renewed his opposition to federal control and declared that he had no intention of surrendering state oil control to federal authorities. He was careful to assert that he intended to cooperate with any federal authorities engaged in national defense activities. His opposition was directed toward any federal bureaucracy which might be built up for the purpose of keeping control of the oil industry after the national emergency is over. Sadler's statement was one of the first made by a commissioner since federal control was announced May 26.

JOHN C. MILLER of The Texas Company gave a paper on "Well Spacing and Production Interference in the West Columbia Field, Brazoria County, Texas," before the Houston Geological Society, September 25, at the Texas State Hotel.

DR. K. H. LOGAN, chief of soil corrosion section, Bureau of Standards, Washington, is conducting corrosion research work in Texas and Louisiana and attended the meeting of the Cathodic Section, Petroleum Industries Electrical Association last week at Houston.

WALLACE E. PRATT, director, Standard Oil Company (New Jersey); C. H. Lieb, in charge of producing operations, and E. Stebinger, chief geologist for the company, were in Tulsa last week on a routine visit to Mid-Continent operations.

S. J. LINTZENICH recently was transferred from Hutchinson, Kansas, to Casper, Wyoming, as manager of Rocky Mountain district for Hughes Tool Company.

H. E. BELL, member of the legal department of Humble Oil & Refining Company for the past 12 years, was retired from active service with the company on September 26, the day before he reached 65. He will go into private practice in Houston, taking over the office of his son, Spurgeon, who is state attorney before the Court of Criminal Appeals in Austin.

Born on a farm near Blanco, Texas, on September 27, 1876, Bell received his early education in that community. He received his academic degree from the University of Texas in 1901 and spent the next three years in government service in the Philippine Islands. Upon his return to the states he again entered the University of Texas and was granted his M.A. and LL.B. degrees.

Private law practice in Gatesville occupied his time for the next 17 years, and he was state representative form Coryell County in 1923. The following year he accepted the post of chief supervisor of the oil and gas division of the Texas Railroad Commission. After 3 years he resigned to become counsel for Moutray Oil Company in Abilene. He joined Humble Oil & Refining Company in Houston as personnel director January 1, 1929; transferred to the legal department where he has handled land and title cases, and in recent years all Rule 37 cases before the railroad commission.

R. W. CAMP, Consolidated Gas Company, was nominated for the presidency of Oklahoma City Geological Society at the first meeting of the current season. Dean McGee, Kerlyn Oil Company, was selected for vice president and H. T. Brown, Cities Service Oil Company, secretary-treasurer.

JAMES F. NAGLE has been appointed vice president and general manager of Milan Refining Company (formerly Taxman Marketing Company), Milan, Illinois.

E. L. PORCH, JR. is chairman and R. N. Kolm is vice chairman of the general committee for 13th annual meeting and field conference of the South Texas Section A.A.P.G. to be held in Monterrey, Mexico, October 31, November 1-2. Other committee chairmen are Arthur H. Petsch and Guy Gierhart, field; L. W. Storm and William G. Kane, program; C. C. Miller and Morris Elms, transportation; Fred P. Shayes and P. L. Schoeneck, hotel and arrangements; Leavitt Corning, Jr., and J. L. Ballard, publicity; William H. Spice, Jr., public relations; William G. Kane, entertainment; W. W. Hammond, finance and registration. J. E. Shaw, Apartado 416, Monterrey, is handling hotel reservations.

Members will meet in Monterrey on October 30. The field trip to Las Cortinas Canyon, 27 miles west of Monterrey, will enable the study of some 3500 feet of middle and lower Cretaceous and approximately 2000 feet of Jurassic. Several gen-

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2"	12 Lb.	54 Lb.
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3"	22 Lb.	61 Lb.
4"	48 Lb.	104 Lb.

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MEN IN THE INDUSTRY'S NEWS

eral papers will be presented at the meeting November 1 in Monterrey, one to cover the lower Claiborne and Wilcox and the other the Cretaceous and Jurassic. The discussions will be limited to the occurrences of these formations in Northern Mexico, Texas, Louisiana and Arkansas. On November 2, the group will return from Monterrey to Laredo, making a surface study of the upper Cretaceous, Midway, Wilcox and lower Claiborne.

G. K. VIALL, vice president of Chain Belt Company, Milwaukee, has been appointed head of a new division of research and development now being organized by the company. Viall has been connected with Chain Belt Company since 1921 in various capacities, including chief engineer chain division, assistant to the president, and works manager. In assuming his new position he will also retain his position as vice president in charge of the construction machinery division.

B. F. Devine, who joined the organization in 1909, has been promoetd from sales manager of the construction machinery division to manager of the construction machinery division. Devine has served in the purchasing department, the engineering sales department and later as assistant sales manager of the construction machinery division. He also will supervise the management of sales of this division.

W. R. WHEELER, JR., connected with American Iron & Machine Works Company for the past nine years, has been transferred from the Monahans shop to Beaumont, Texas, where he will handle sales of the American control head tubing packer in South Texas and Louisiana.

H. R. BRISTOL has been transferred from Chicago to the Boston office of The Bristol Company. He has had experience in both engineering and sales departments. J. E. Booth has been appointed to take over the Chicago district.

GEORGE L. RANDALL has been appointed advertising manager of Wickwire Spencer Steel Company and its subsidiary, American Wire Fabrics Corporation with combined offices at 500 Fifth Avenue, New York City, succeeding K. A. Zollner who resigned. Randall was employed by Wickwire Spencer as assistant advertising manager in 1935. Prior to this he was successively sales training instructor for West Bend Aluminum Company, a staff member of McCann-Erickson research department, English instructor at Arden School for Boys, a publicity, advertising and radio script writer for Warner Brothers, and immediately prior to joining Wickwire Spencer he was assistant advertising manager of G. Schirmer's Music Publishers.

LAWRENCE K. BLACKMAN, assistant treasurer of Farrel-Birmingham Company, Buffalo, New York, has retired after 43 years with the company. He entered the employ of Farrel-Birmingham (then Farrel Foundry & Machine Company) in 1898 as a bookkeeper at its Ansonia, Connecticut office. He served in the accounting department at Ansonia 21 years and was transferred to Buffalo when that plant was started in January, 1920. At Buffalo he was in charge of general accounting and in February, 1930, was elected assistant treasurer, a post he held until his retirement.

H. R. CULLEN, president of Quintana Petroleum Company, Houston, has left for an extended vacation in Canada.

PAUL J. FLY will open offices as a consulting geologist in the Esperson Building, Houston, October 1. He has been associated with W. R. Davis interests since January 15, 1937.

TAYLOR M. BISHOP, treasurer of Independent Gas Producers Association of Ohio, died at Alexandria, Ohio, September 16. He served as president of Ohio-Pennsylvania Grade Oil Producers Association in 1934-36. He also was serving as vice president for Ohio in the Independent Petroleum Association of America at the time of his death. He operated oil and gas properties and drilling interests in Ohio for the past 25 years, and served as cashier of Alexandria Bank Company.

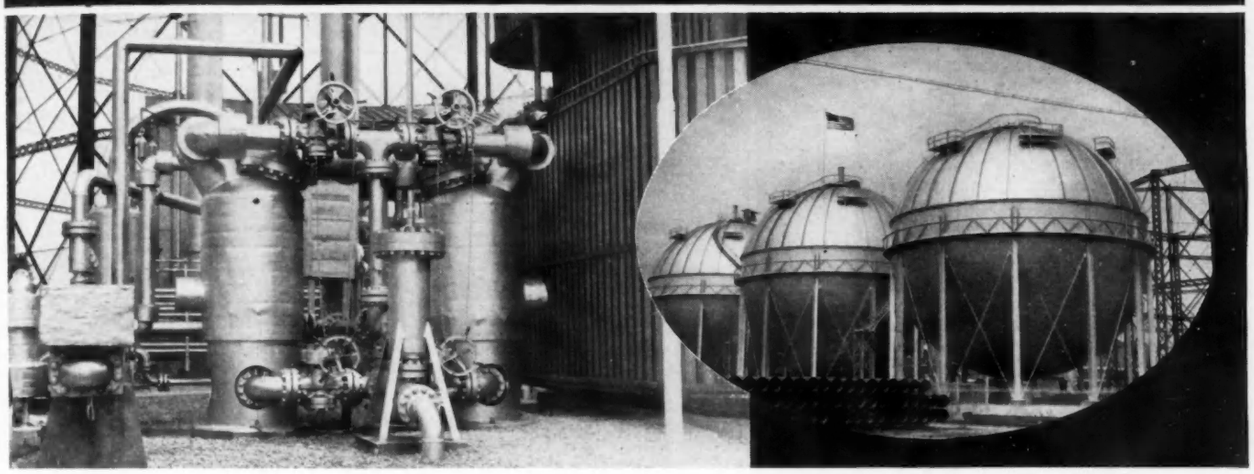
H. C. WHEELER, 40, West Texas geologist and operator the past 15 years, was killed September 19 in an auto accident near Jal, New Mexico, and Wallace W. Irwin, vice president of Culbertson & Irwin, an occupant of the same car, was slightly injured. Both resided at Midland, Texas.

T. A. ANDERTON, 56, president of Continental Refining Company at Oil City, Pennsylvania, died in Oil City on September 19.

ROBERT C. TUTTLE, 48, general manager of transportation of The Atlantic Refining Company, died in Philadelphia on September 16. He was a member of District 1 transportation committee advising the Office of Petroleum Coordinator, president of Keystone Pipe Line Company, president of Buffalo Pipe Line Company and president of Atlantic Oil Shipping Company.

J. CLIFFORD MARTIN, executive secretary of the Bradford District Pennsylvania Grade Oil Producers Association, was killed September 19 when a nitroglycerin truck in front of his car exploded on a highway near Bradford. Clarendon Streeter, oil operator, was in the car and was seriously injured.

LIQUEFYING NATURAL GAS CALLS FOR "BIG TIME" REFRIGERATION



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PRIORITY FORMS

PD-25C **PD-73**
PD-25D **PD-83A**

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Form PC-25C (revised) is provided as a replacement of the original Affidavit PD-25C. It is for use by those who give to their suppliers a monthly statement of the percentage of the previous month's dollar volume which was for Defense, as defined in the Defense Supplies Rating Plan.

Form PC-25D is provided as a replacement for those who have been using the affidavit as identification for **individual purchases** and who have shown thereon the number of the Order or Certificate assigned a preference rating under which the material covered by that individual order was to be used. For your convenience the new form is a **Customer's Certificate of Defense Requirements** instead of an **Affidavit.**

Form PD-73 pertains to the shipment of steel under Preference Order No. M-21.

Form PD-83A pertains to deliveries of steel from warehouse stock during first quarter of 1941.

★

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Squeaks from the Bull Wheel

Priority Blues

All together: "Keep your temper, gentle sir," writes the manufacturer. "Though your goods are overdue for the month, or maybe two, we can't help it—please don't swear. Labor's scarce and steel is rare; can't get rivets, can't get dies; these are facts, we tell no lies.

"Johnny's drafted, so is Bill; all our work is now uphill. So your order, we're afraid, may be quite a bit delayed. Still you'll get it, don't be vexed—maybe this month, maybe next. Keep on hoping, don't say die; we'll fill your order bye and bye."—Royal News.

Sympathetic

A silk manufacturer and an aluminum utensil manufacturer sat next to each other at the club. Both remained quiet for many minutes, gazing into space. Finally one of them gave a long-drawn-out sigh. The other looked around and said:

"You're telling me."

Caught in the Act

"I bet that man was embarrassed when you caught him looking over the transom."

"Gosh, yes. I thought he'd never get over it."

Handicap

"Did your garden do well?"

"No, every time my husband started digging he found a lot of worms, so he'd always quit and go fishing."

Lady, No Unregistered Guests

"There is a rat in my room."

"Make him come down and register."

Service With a Smile

Driving into a service station, a motorist asked for 10 gallons of gas. Three service men hopped to work smartly—cleaning windshield, checking tires and water, etc. The driver paid his bill and drove off.

A few minutes later he returned and asked: "Did any of you put gas in my car?" The three attendants went into a huddle—then confessed nobody had.

Cooperative Wife

Your business partner laughed when I spoke to the waiter in French—but the joke was on him.

How was that?

I told the waiter to give him the check.

Taking No Chances

The census taker was inquiring of the mountaineer how many children he had:

"Four, an' by Gosh that's all I'm going to have."

"Why."

"I just read in this here almanac that every fifth child born in the world is a Chinaman."

No Rush

"My husband is a gentleman. He never walks into the room when I'm undressing."

"Neither does mine, he waits until I'm through."

Definition

"Willie, how do you define ignorance?"

"It's when you don't know something and someone finds it out."

Frank About It

"Are you free this evening?"

"Well, not exactly free, but very inexpensive."

Face Saving

Doctor—May I kiss you?

Nurse—Certainly not. Do think I want a doctor's bill thrust in my face?

Misunderstood

"If there be anyone in the congregation who likes sin let him stand up—what's this, Sister Virginia, you like sin?"

"Oh, pardon me, I thought you said gin."

The Build Up

"How are you this evening, honey?"

"All right, but lonely."

"Good and lonely?"

"No, just lonely."

"I'll be right over."

Breaking It Gently

I have never seen a child as badly spoiled as that son of yours.

Why, how can you say that?

Just come on out and look what the fire engine done to him.

Logical

"And which of all the parables do you like the best, my boy?"

"The one where somebody loafs and fishes."

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KEEP PURE DRINKING WATER ALWAYS HANDY

NOTES FOR THE Equipment Buyer and User

Telescoping Mast

WILSON MANUFACTURING COMPANY

A telescoping mast designed and manufactured by Wilson Manufacturing Company of Wichita Falls, Texas, is 86 feet high from ground to center of sheaves, and is said to be one of the lightest, strongest, longest of its kind.

It is raised and telescoped to full height by a double-drum worm-geared winch, in less than two minutes, with both lines remaining strung up. Lock for the upper section of mast is operated by a lever at ground level, and can be locked and unlocked in a few seconds.

Lower half of the mast is a parallel rectangular 6-by-3-foot box section. Upper half is a modified box section with a "set back" front face, which is said to add greatly to the strength of the mast as compared to an "open face" type.

When lowered for moving the mast telescopes almost completely together leaving only the sheaves extending from one end and the leveling screws on the front legs projecting on the other end.

Racking platform, large enough to rack 8500 feet of 2-inch upset tubing after hanging the rods (or 6500 feet of 2½-inch), is arranged so that the railing and walk-ways fold inside of the racking platform, then the entire platform swings down inside the upper section of the mast and is held by an automatic lock while the upper half is telescoped into the lower half.

Mast is designed for a gross capacity of 158,000 pounds (calculated by the column formula of the American Institute of Steel Construction). Front legs in both sections are made of 5 x 5 x ⅜-inch steel angles, and rear legs are made of 3 x 3 x ⅜-inch structural steel. Other bracing and structural parts are made of standard structural steel shapes, the heaviest loaded being welded into a box esction.

Starter

GENERAL ELECTRIC COMPANY

A new line of 2300-volt 60-cycle general purpose starters designed for protection against short circuits and overloads has been announced by the Industrial Control Division, General Electric Company, Schenectady, N. Y. Composed of an oil-immersed contactor with self-cleaning copper tips, wide metal bearings, and copper-braided shunts for long life, and the new EJ-2 current-limiting fuses for short circuit protection, the control and bus structure is completely metal-enclosed for compactness, easy installation, and safety.

There are four standard types of starters in this new line—providing for full-voltage starting, reduced-voltage starting, and reversing of squirrel-cage motors and synchronous motors. Starters for special applications are also available.

Starters afford complete protection

General Electric Starter

against short circuits by the use of EJ-2 current-limiting fuses, which limit short circuit current in less than ¼-cycle, and open in less than ½-cycle. These fuses have a disconnect feature which makes possible the complete isolation of an individual starter without causing the entire motor line to be shut down.

Motors are protected against overloads by isothermic relays which operate in case of locked rotor, single-phasing, or sustained overload. Under voltage protection is provided; on low voltage or loss of power the line contactor opens and on return of power the motor will not restart until the push button is operated.

Grinding Wheel Dresser

IDEAL COMMUTATOR DRESSER COMPANY

Ideal Commutator Dresser Company, 1525 Park Avenue, Sycamore, Illinois, announces a new abrasive wheel type grinding wheel dresser that is said to give a cutting and truing effect almost equal to that of a diamond.

Cutting wheel is held in a protective metal housing which deflects the grindings away from the operator. A large handle makes it convenient to hold and use. Cuttting wheel is replaceable when necessary.

Besides general cleaning and truing of a grinding wheel, other uses include the truing of cut-up and uneven sides, dressing out deep grooves and out-of-roundness, restoring out of balance wheels into true rotating ones. It can also be used to shape wheels into different forms when form grinding is desired.

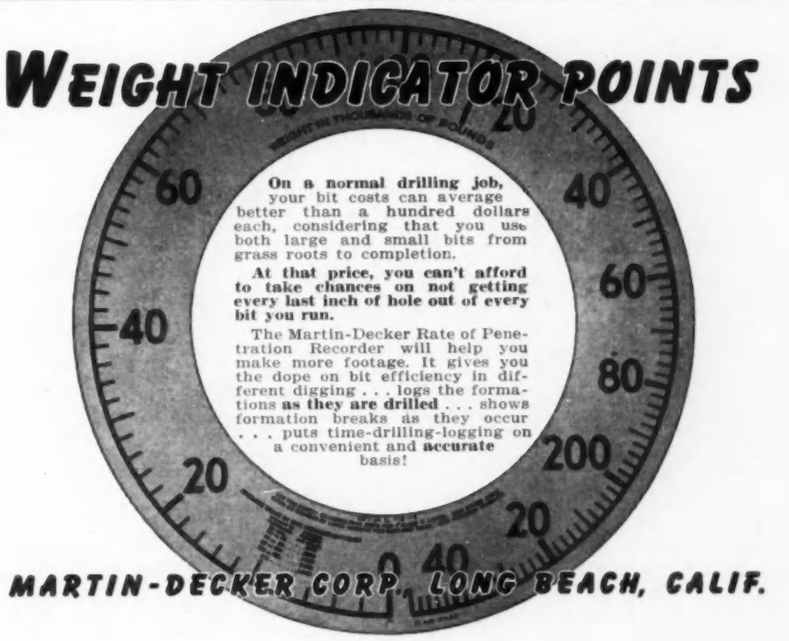
Goggles

B. F. McDONALD COMPANY

B. F. McDonald Company, 1248 South Hope Street, Los Angeles, has announced a plastic eye guard combining features of spectacles and cup goggles.

Because they are molded entirely of clear plastic, these guards are said to be exceptionally light and strong. Nonshatterable, they pass the standard drop test which consists of dropping a ⅞-inch steel ball on the lens from a distance of 50 inches. Tested for clarity and freedom from imperfections, they are said to afford unrestricted vision and provide full protection against flying objects.

Because there are no frames, no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4-Strand Right or Left Hand Lay
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Cable Laid (Drilling Cable Construction)

ALL FITLER Spinning Lines contain the blue and yellow color yarn (Reg. U.S. Patent Off.) Trademark.

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intricate parts, they are particularly recommended for workers engaged in grinding or chipping operations. They may be easily sterilized at any time. Unique design eliminates all pressure on ears or on bridge of nose. Clear or green tinted "Vernalite" lenses are supplied.

New Open-Hearth Furnace for Wisconsin Steel Works

First steel has just been poured from a new 150-ton open-hearth furnace at the Wisconsin Steel Works of International Harvester Company, first addition to the open-hearth steel-making capacity of the Chicago district as the result of new construction, since the advent of the defense program. The furnace was finished 45 days ahead of schedule.

The open-hearth furnace just tapped is one of two new ones built by International Harvester Company to increase the steel ingot capacity of its Winconsin Steel Works. The two new furnaces will add approximately 160,000 tons of steel to the annual capacity of the Chicago steel district, and will increase the annual capacity of Wisconsin Steel Works to approximately 860,000 net tons of ingots.

In addition to the two new open-hearths, a 220-ton crane, a charging machine and a 2-hole soaking pit were constructed as part of the same expansion program. The total cost of the construction job was approximately $1,500,000.

Possible Future Oil Provinces Of United States and Canada

The American Association of Petroleum Geologists has issued a new book, profusely illustrated, "Possible Future Oil Provinces of the United States and Canada," edited by A. I. Levorsen.

The volume is a symposium conducted by the Research Committee of the A.A.P.G. Areas discussed include Alaska, Western Canada, Pacific Coast states, Rocky Mountain region, Northern Mid-Continent, West Texas, Eastern Canada, Eastern United States and Southeastern United States.

Purpose of the symposium is to get an over-all picture of the undiscovered oil resources of North America, north of the Rio Grande. Ten geological organizations participated to the end that the survey has behind it the authority of many geologists representing state and national geological surveys, large and small oil companies, and consulting and independent geologists. A map and a section of geology, stratigraphy, and structure illustrate each province description.

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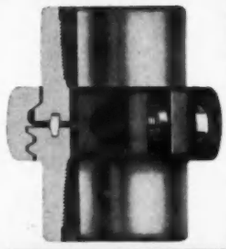

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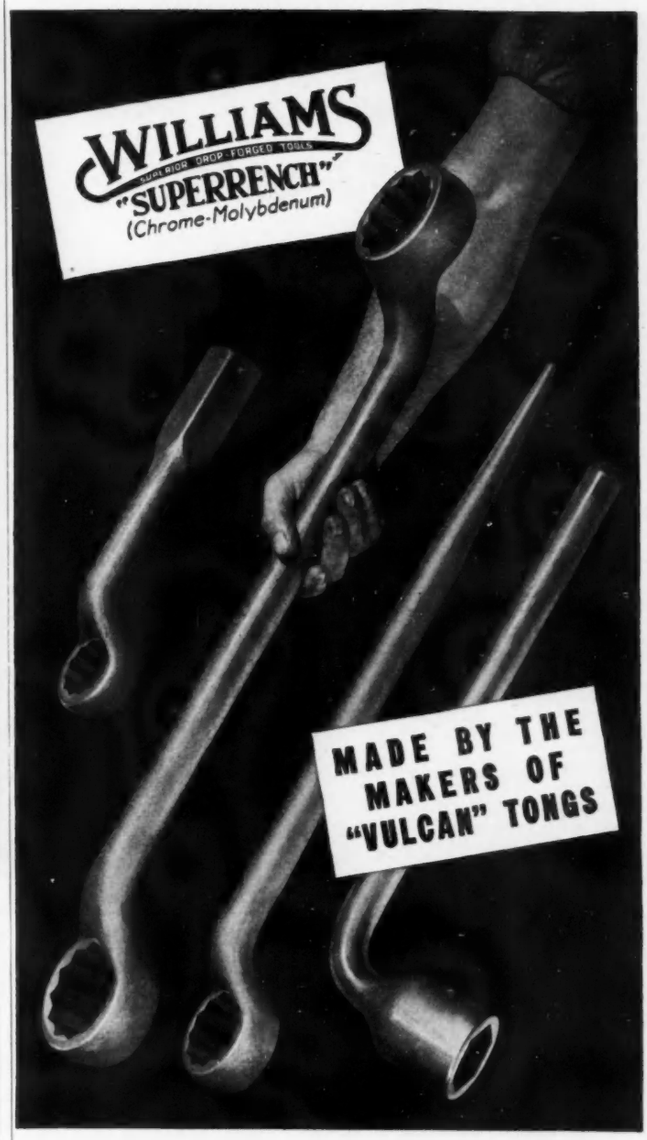

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